

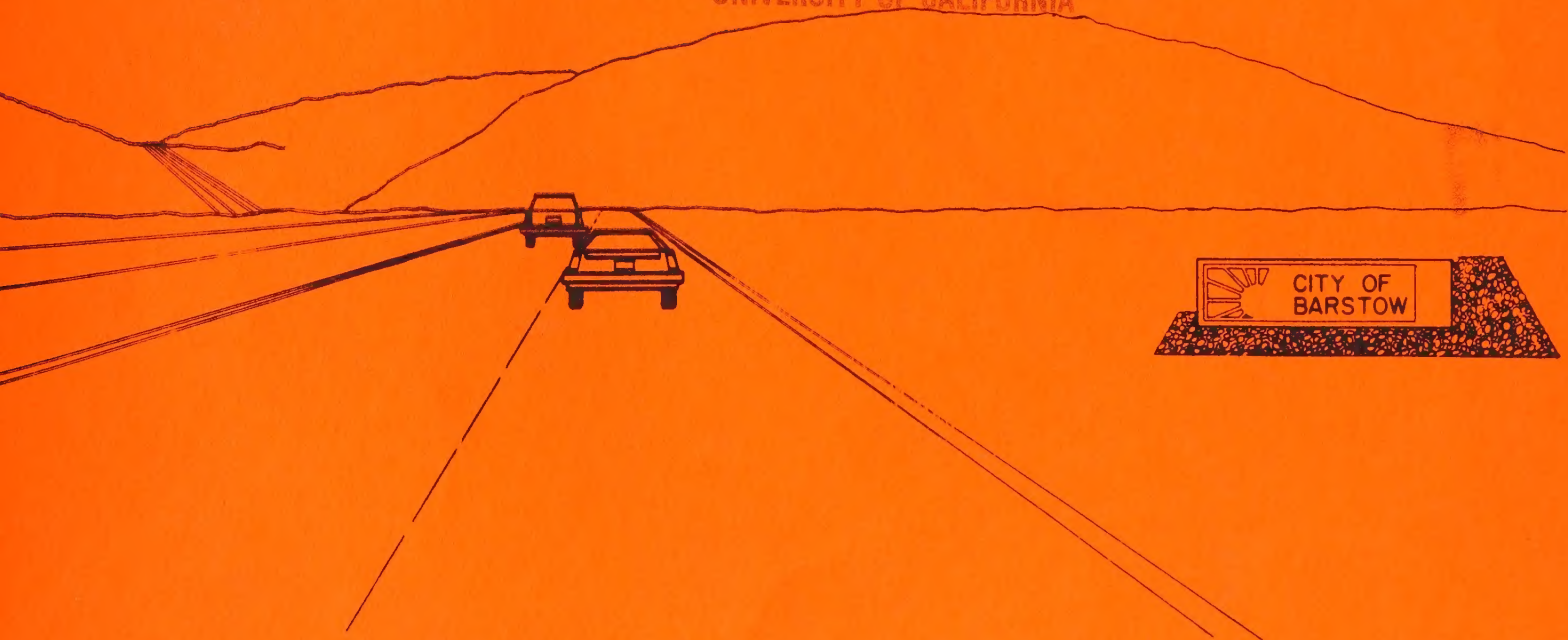
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# GENERAL PLAN

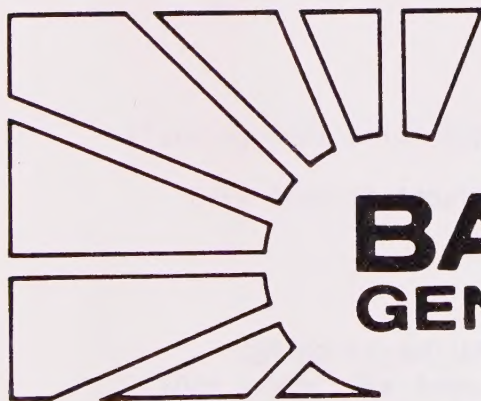
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**BARSTOW**  
**GENERAL PLAN**







CITY OF BARSTOW

GENERAL PLAN

Planning Commission Approval 11/23/87

City Council Adoption 12/7/87

COTTON/BELAND/ASSOCIATES  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104

#424



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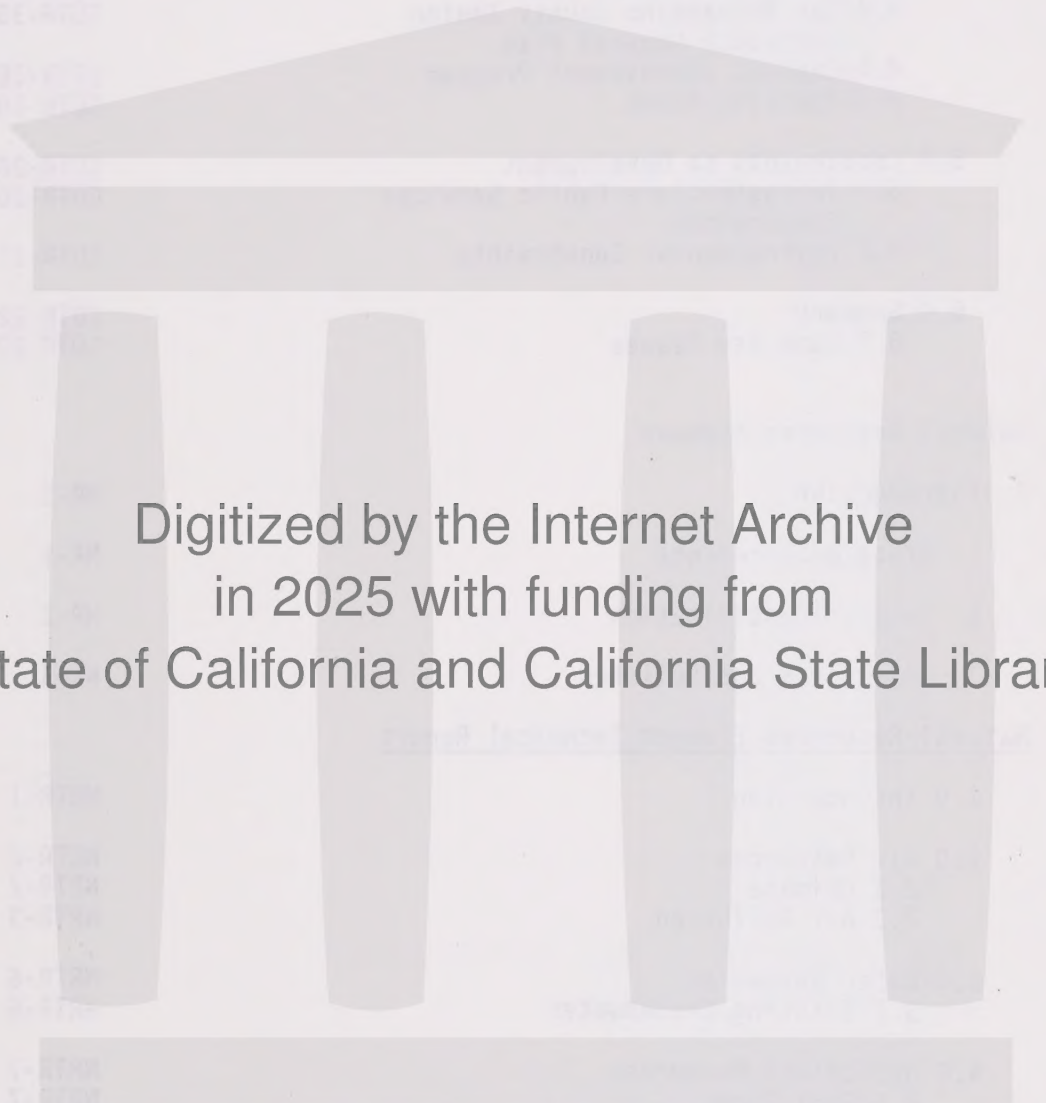
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## I. INTRODUCTION

### A. The Barstow General Plan

To plan is to prepare for the future. For Barstow, this means improvement and expansion of existing uses coupled with steady growth throughout the planning period. Growth is usually welcomed and encouraged: the words bring to mind more people, expanded commercial and recreational enterprise, and a greater opportunity to provide residents with a better way of life. However, growth is accompanied by a need for additional public facilities including schools, streets, sewage collection, water lines, police, fire protection, etc. The central purpose of the General Plan is to guide the orderly growth and changes of the community in a way which promotes the health and safety of residents and visitors.

The initial step in preparing the Barstow General Plan was to determine the long-range goals of the community. These goals, along with more specific policy statements, serve as a guideline for the future development of the City. They address what types of land uses (e.g. residences shopping areas, etc.) are appropriate and how much land should be allocated to each type of use. The plan also looks at other factors of importance to the City. These include the extension of Highway 58, the potential for tourist-oriented commercial use along the I-10 Freeway, and a number of other items.

The Plan serves as a tool and frame of reference for use by City officials and citizens. It also aids public agencies in determining the amount and location of public facilities that will ultimately be necessary to adequately serve the anticipated growth and development. The Barstow General Plan is not a precise plan. It does not intend to show the exact land use pattern which will ultimately occur. Instead, it 1) indicates the general location of land uses, 2) presents initial information concerning the potential maximum development for given areas, and 3) shows the interrelationships of various land use patterns. The Plan constitutes an expression of City objectives, principles, standards, proposals, and policies. It provides a basis from which decisions related to specific land use proposals can be made.

It is important that the "general" nature of the plan be stressed. The Plan looks at the big picture. It is a view of the community as a whole. The Plan is not the same as the City's zoning ordinance and not nearly as specific in its definition of areas or as detailed in its requirements as zoning. The Zoning Ordinance is one of the tools the City uses to direct and help realize growth in the manner prescribed by the General Plan.

The General Plan will require periodic review, updating and analysis. Future development will refine the Plan and make it more specific. Development proposals which represent major changes in existing policies will have to be analyzed and evaluated in light of their potential impact on existing community development and facilities. The cumulative effect of a series of small changes can also be gauged and facilities upgraded when necessary. The results of such reviews are then reported to the City's Planning Commission



and City Council. The Plan should be amended when necessary to keep it current with the major overall growth and development pattern of the community.

Seeing the Plan actually realized is primarily accomplished through the application of zoning and subdivision ordinances, site development standards, and engineering requirements. In the future, increased emphasis will be given to site planning studies which employ means of solving development problems such as flooding, vehicle circulation, and utility service for specific areas.

## **B. The Planning Function**

The City provides for the appointment of a Planning Commission as well as other advisory boards and commissions. The Barstow Planning Commission consists of five appointed members, who review all discretionary projects as outlined by the Planning and Zoning Law.

The Community Development Department has a number of specific responsibilities relating to the physical improvement and growth of the City. Their principal responsibilities include:

- 1) Review of development proposals to ascertain compliance with the City's General Plan, Zoning Ordinance, and other related ordinances and codes.
- 2) Prepare informational reports and recommendations to the City Planning Commission and City Council on matters requiring review and/or action by the Commission or Council.
- 3) Provide technical assistance in the preparation of plans, programs, and policies governing land use within the City.

## **C. General Plan Elements**

The General Plan is divided into six elements.

- 1) The Community Development Element designates the proposed general distribution, location and extent of the various land uses proposed for Barstow. The Element identifies standards for population density and residential development intensities.
- 2) The Housing Element identifies the existing and projected housing needs of the community and establishes goals, policies, objectives, and programs for the preservation, improvement, and development of housing to meet the needs of all economic segments of the community.
- 3) The Hazards Element establishes standards and plans for the protection of the community from a variety of hazards including fire, geologic hazards, and flooding. The Hazards Element also examines noise sources and provides information which may be used in sighting land use policies to encourage noise compatible uses and to aid in the establishment and subsequent enforcement of a local noise ordinance.





- 4) The Natural Resources Element considers the constraints and opportunities needed for long-range planning in areas related to air quality, water quality, geologic factors, and biological resources. This Element provides for the conservation and, where appropriate, development and use of natural resources.
- 5) The Cultural and Recreational Resources Element details plans and measures for the preservation of open space as well as the management of outdoor recreation and various cultural resources including historic, archaeologic, and paleontologic sites.
- 6) The Infrastructure and Circulation Element identifies the general location and the extent of existing and proposed roadways, highways, railroads, and transit routes and considers water supplies, storm drainage, and various utilities.

Each element contains a brief introduction, a statement of the issues involved, goals and policies statements, and discussion of how these policies can be realized.

The General Plan is designed to serve Barstow for a period of 20 years. The long-term emphasis of the Plan is not meant to mark beginning and ending points; instead the long-term perspective is the framework under which short-term decisions will be made. Schedules for monitoring and revising the Plan are included in the document.

#### **D. Development of the Plan**

The Plan was developed over a period of many months and involved extensive citizen input. Initial work on the General Plan began following the adoption of a Community Policy Plan in mid-1986. A number of workshops were held with the Barstow Planning Commission during the period that the consultant team identified issues and drafted portions of the General Plan. A wide range of community organizations, governmental agencies, property owners, persons with development interests, and interested citizens were interviewed by the consultant team during the Plan's preparation. The General Plan has been an important component in local planning for many years. Planning law has changed over the years. Based on the interpretation of the courts, all general plans must conform to the following requirements:

- 1) Each part of the General Plan must be internally consistent and all parts must be mutually consistent;
- 2) The Zoning Map, revisions to the Zoning Map, subdivision approvals, and the Zoning Ordinance must be consistent with the General Plan;
- 3) All capital improvements and public works projects must be consistent with the General Plan;



## E. Organization of the Barstow General Plan

The Barstow General Plan consists of two major components: the General Plan, containing the required and optional elements, and the Master Environmental Assessment (MEA) which will serve as the EIR.

Mandated Element Areas

	Land Use	Circulation	Housing	Conservation	Open Space	Noise	Safety
Hazards				X	X	X	X
Natural Resources	X			X	X		
Cultural and Recreational Resources	X				X		
Community Development	X		X				
Infrastructure	X	X		X			
Housing	X		X				

Beginning the General Plan with Hazards Element and Natural Resources Element establishes an early linkage between the land, its characteristics (limitations and resources), and suitable use thereof. These elements basically relate to the natural environmental base of the city.

Cultural and Recreational Resources Element involves a combination of the natural and the man-made environment. Therefore, this element is designed to complement the previous two elements in establishing a framework for determination of future "best use" of land.

The Community Development Element introduces the physical and social needs and concerns of the community into the Plan.

Infrastructure Element, the full range of physical improvements necessary for sewer and water facilities, fire and police protection, flood control, traffic



and circulation, and all other support/service needs, is a critical element of the General Plan.

The Housing Element follows a state-mandated format and is a significant policy statement of the General Plan. It provides a comprehensive definition of housing needs and plans to satisfy these needs for existing and expected residents of Barstow. As recently adopted, the new Housing Element is up to date and no further work is required.

This General Plan and its elements will replace the previous Plan and elements. In addition, a certain number of the goals and policies articulated in the previous General Plan elements have been incorporated into the elements contained in this General Plan.

The format and style of the General Plan and the Master Environmental Assessment (MEA) will enable the City to use the document as an environmental impact report (EIR). The General Plan and MEA will serve to describe the environmental impacts that may be anticipated to result from the adoption of the General Plan. Section 15166 of the California Environmental Quality Act (CEQA) Law and Guidelines state:

"The requirements for preparing an EIR on a local general plan, element, or amendment thereof will be satisfied by using the general plan, or element document, as the EIR and no separate EIR will be required if:

- 1) The general plan addresses all the points required to be in an EIR by Article 9 of these Guidelines, and
- 2) The document contains a special section or a cover sheet identifying where the general plan document addresses each of the points required."

Article 9 of the CEQA Law and Guidelines is concerned with the contents of the EIR. The General Plan document will incorporate a majority of the required EIR components directly into the General Plan Elements or the accompanying Background Reports. This task will be concerned with the preparation of a report that will explain how to use the General Plan as an EIR. This report will also include certain components required by CEQA (Article 9) that are not addressed elsewhere in the General Plan.

The impacts of alternative "concept plans" prepared as part of the General Plan Update will serve as the project alternatives required by CEQA. The "Proposals" section of the individual elements will describe the environmental impacts associated with the adoption and implementation of the General Plan. The goals, objectives and policies of each element will serve as mitigation measures.





# COMMUNITY DEVELOPMENT ELEMENT





## II. COMMUNITY DEVELOPMENT ELEMENT

### A. Introduction

The Community Development Element is concerned with the physical development of the city and its appearance. This element designates future land use patterns and specifies the appropriate density and intensity of development. The Community Development Element addresses an overall design framework and guide for the city. The Plan emphasizes a safe and healthful environment for all residents and visitors.

The Community Development Element is the central element of the General Plan. The goals and policies it contains have a common link to the other elements.

The Community Development element relies on maps and diagrams to identify the patterns of land use the community seeks to establish through the element. The Community Development element has been designed to:

1. Promote a safe, balanced and functional mix of land uses consistent with community values.
2. Guide public and private investments;
3. Reflect the opportunities and constraints affecting land use identified in other elements of the General Plan; and
4. Reduce the loss of life, injury, damage to property, and economic and social dislocation resulting from natural and man-made disasters.



## B. Assumptions

The following is a listing of basic assumptions upon which the Community Development Policies and Land Use Policy Map are based. These assumptions are an outgrowth of a Community Policy Plan prepared in the summer of 1986 and General Plan workshop meetings conducted in late 1986 and early 1987 as part of the General Plan update process. The basic assumptions are as follows:

1. The Plan should maintain and enhance the economic viability of the downtown area by restricting the type and extent of commercial areas in other portions of the community. A clear designation needs to be made between commercial uses which serve City residences and those which serve visitors.
2. Certain types of uses should be permitted only under special conditions which ensure compatibility with adjacent land uses; such uses include:
  - a. Commercial development that occurs in a linear pattern parallel to the adjacent roadway as opposed to clustered commercial development.
  - b. Commercial facilities, primarily catering to non-residents (e.g., motels and hotels).
  - c. Scrap yards and junk yards.
  - d. Projects which involve extensive cut and fill.
  - e. Sand, gravel and other borrow operations.
3. Whenever possible, new commercial development should be concentrated in commercial centers.
4. Industrial uses should be grouped in centers and be physically separated from residential uses wherever possible.
5. Provision should be made for commercial/manufacturing uses in which a product is either manufactured or wholesaled at the same location where it is retailed.
6. Land development priorities should be directed toward those commercial uses which maximize revenues, minimize required services, and do not add to population growth pressures.





7. The potential for the following should be investigated:
  - a golf course and supporting facilities;
  - a tourist train from Barstow to Calico;
  - a golf driving range with night lights;
  - an equestrian center including rodeo facilities; and
  - a water sports complex.
8. Preservation of historic landmarks is of special concern.
9. New residential development should not be permitted to front on major arterial highways.
10. Completion of the Rt. 58 connection with I-15 is a high priority.
11. Additional parking is needed, especially in the downtown areas.
12. Automobile routes should be separated from pedestrian, bicycle, and equestrian areas.
13. Special areas and facilities should be established for off-road vehicles and motor bikes.
14. The major orientation of residential development should be to low and medium densities.
15. Multiple-family residential projects should be kept at a small scale and should be compatible in design with the single-family residential areas wherever possible.
16. The City should explore the feasibility of some mixture of residential and commercial uses, particularly in the downtown area.
17. New housing should be prohibited from areas subject to flooding, seismic and blow sand hazards. Development should be limited from areas with steep terrain, unstable soils, seismic hazard, flooding, blow sand, noise, and fire hazards.
18. The use of planned unit development needs to be encouraged.
19. Priority must be given to upgrading public facilities, especially as they relate to residential neighborhoods.
20. Current agricultural areas should be preserved and protected.



## **C. Land Use Policy**

### **1. Land Use Policy Map**

This General Plan defines land use policy for the City through this Element and the General Plan Land Use Policy Map (see Figure CD-1). A large scale version of this map is available at the City Planning Office.

The Land Use Policy Map describes the general pattern of land uses at buildout of the entire City as well as areas which are within the City's Sphere of Influence.

Although the Land Use Policy Map presents land use categories covering the entire City and Sphere of Influence, the expected time frame for the Plan is limited to the Year 2010. The Plan assumes that approximately 10% of the present vacant areas (excluding essentially undevelopable areas in the community such as fault zones and the Mohave River) or about 1,000 acres will be developed within the next 20 years. Circumstances of owner intent, interest rates, market demand, and many other variables will affect this process. The Land Use Policy Map should be interpreted as a general guide only. It, along with the written policies and guidelines expressed in this Element, is intended to direct the amount and define the type and relationships between the various land uses.

The classifications shown on the Policy Map are for General Plan purposes only and are, therefore, not as detailed as those found on a zoning map. State law requires that the City's zoning be consistent with its General Plan; however, it is often common to have more than one zoning classification covered under a single General Plan designation.

The following section describes the land use designations illustrated on Figure CD-1.

### **2. Land Use Designations**

The City of Barstow Community Development Element contains 11 basic land use designations. These designations describe the nature, density and intensity of development that would be permitted for each land use category. The location and extent of land uses for each designation are illustrated on the Land Use Policy Map (Figure CD-1).

Modification of height and bulk intensity standards described in this section may be permitted subject to a finding that the overall building intensity of the Community Planning Area will remain the same. In addition, individual development plans must be in furtherance of Redevelopment Plan or Specific Plan objectives in that they provide needed facilities identified by those plans.

The Community Development Element contains three residential designations, four commercial designations, and a single category each for industrial, public facilities, open space, and specific plan.



- a. Desert Living (maximum 2.0 dwelling units per net acre): This is a rural residential designation designed for very low density, single-family detached housing development. It comprises areas peripheral to more urbanized portions of Barstow. Infrastructure and other public improvements tend to be minimal. In most areas, there are no paved streets. These areas may be eligible for rural design standards in the future.

In order to effectuate the density and concepts of the Desert Living category of the General Plan, the following policies shall apply:

- 1) Development within the existing Desert Living zone (minimum 2-1/2 acre lot size) requires adequate water supply through individual or community wells. Septic tanks and leach fields must provide evidence of adequate percolation, to be reviewed and approved by the City Engineer. Mobile homes or modular housing will be permitted on Desert Living parcels of 2 1/2 acres or larger, subject to the requirements of Section 19.44.040 and all other requirements of the Desert Living zone.
- 2) Rezoning from D-L (minimum 2-1/2 acre lot size) to DR (minimum 1 1/4 acre lot size) requires adequate water supply, sewage disposal and street improvements.
  - a) Water Supply. Adequate water must be provided for domestic and fire protection needs.
  - b) Sewage Disposal. Individual septic tanks are subject to adequate leach fields and acceptable percolation tests, as approved by the City Engineer.
  - c) Street Improvements. A minimum of 24 feet of paving must be provided on all streets serving any Desert Ranchette development. Any streets with a gradient in excess of 8% must provide graded shoulders and drainage improvements, to be approved by the City Engineer.
- 3) Rezoning from D-L (minimum 2-1/2 acre lot size) or D-R (minimum 1-1/4 acre lot size) to RS-16 (minimum 16,000 square foot lots) requires evidence of adequate water supply, sewage disposal and street drainage improvements.
  - a) Water Supply. Adequate water must be provided for domestic and fire protection needs.
  - b) Sewage Disposal. Trunk line sewer facilities must be provided to serve the subdivision/development(s). Other options would include package treatment plants or equivalent treatment technologies as determined by the City Engineer.
  - c) Street/Drainage Improvements. Storm water must be adequately conveyed within the roadway or approved easements. Potential



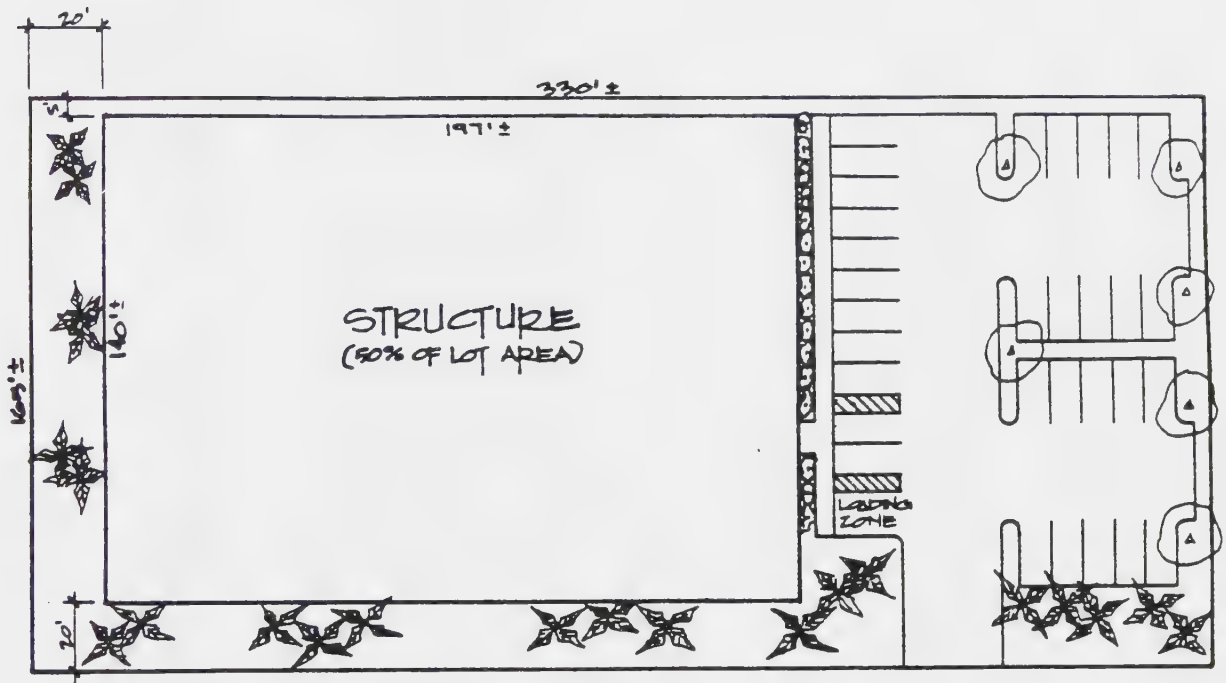


street sections would include 24 feet of paving, rolled curb (or approved equivalent) and elimination of sidewalks. Utilities would be constructed within easements to be located outside the roadway. Circulation and traffic impacts must be addressed.

- b. Neighborhood Residential (maximum 5 dwelling units per net acre): The Neighborhood Residential designation is designed for low density residential development generally consisting of single-family detached residences. The designation is defined for areas currently developed in this manner as well as for several large undeveloped tracts peripheral to developed single-family areas and Desert Living areas.
- c. Urban Living (maximum 15.0 dwelling units per net acre): This designation has been applied to multiple-family developments and areas of potential multi-family development located within the City's developed core. This designation accommodates a variety of multi-family housing types, including duplexes, triplexes, garden style units, and townhouses.
- d. General Commercial: The Commercial land use designation corresponds to the Neighborhood Business and General Commercial zone districts. Development intensity for this land use designation is measured by the percentage of building coverage on a given lot coupled with height limitations as defined by the City's zoning code. Under this designation the maximum coverage is generally 50% with buildings no higher than 35 feet or three stories. Uses within this category are primarily intended to serve local residents.
- e. Visitor-Serving Commercial: This designation corresponds with the Highway Commercial zone classification. It is intended to provide retail and service facilities for persons traveling on I-15 and State Highway 58. The maximum lot coverage is 50% with a height limitation of 25 feet or two stories.
- f. Administrative Center: This designation allows for a range of office and office related uses, including business offices, medical offices, real estate sales, and or related concerns. The density of development is governed by the Office Professional zone classification which allows for a maximum building coverage of 50% and a height limitation of three stories or 35 feet for any given lot. The areas surrounding the City Hall, Library, and County Offices have been placed within this category. Property within the residential overlay area can be developed with two-story, garden-type apartments having a maximum density of no more than 15 dwelling units per net acre, subject to the approval of a Conditional Use Permit. Limited retail sales related to the professional service industry may be permitted, subject to the approval of a Conditional Use Permit.
- g. Industrial. The General Plan has one industrial designation which accommodates both M-1 and M-2 zone classifications. The designation allows for a variety of industrial activities ranging from

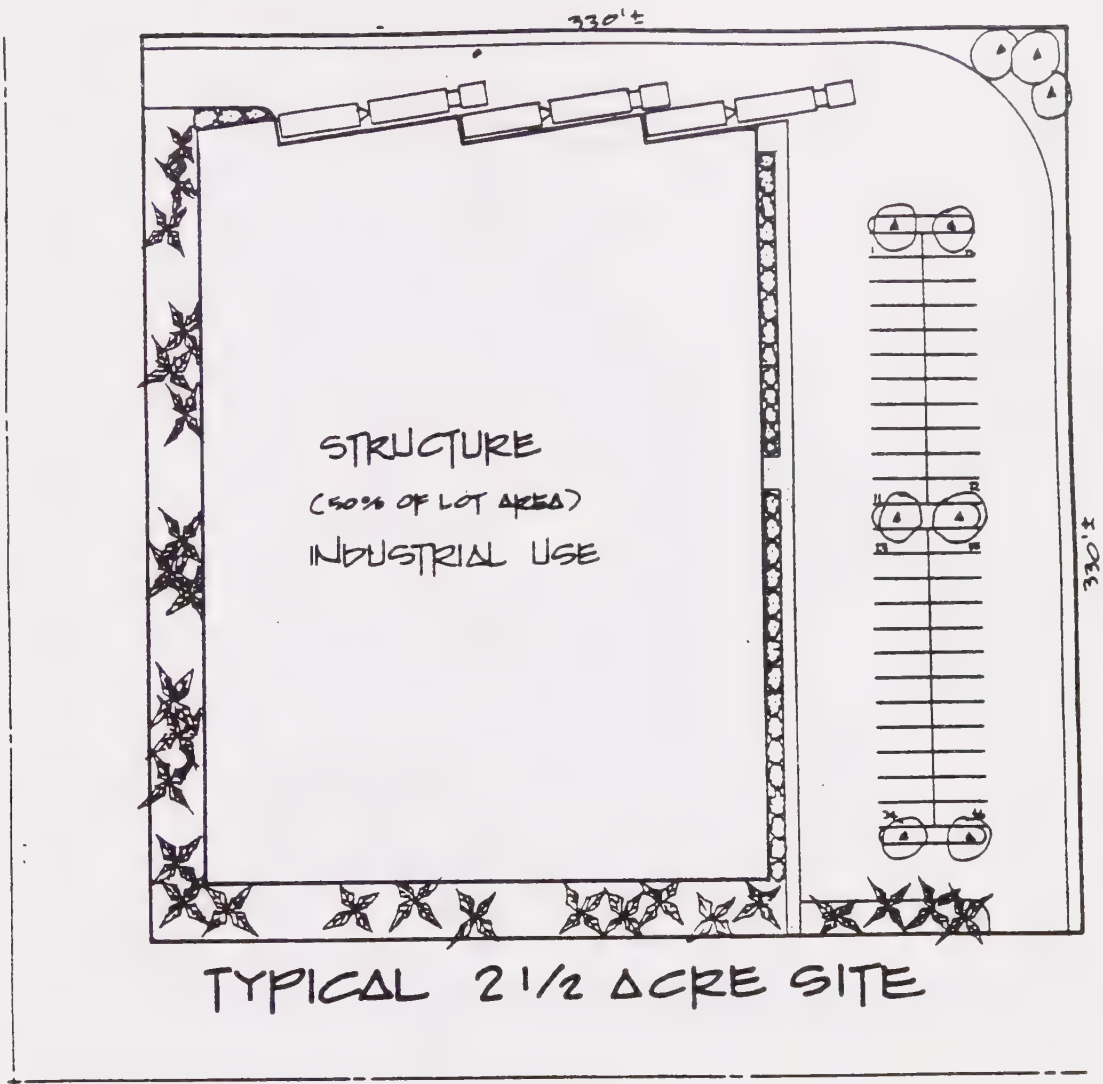






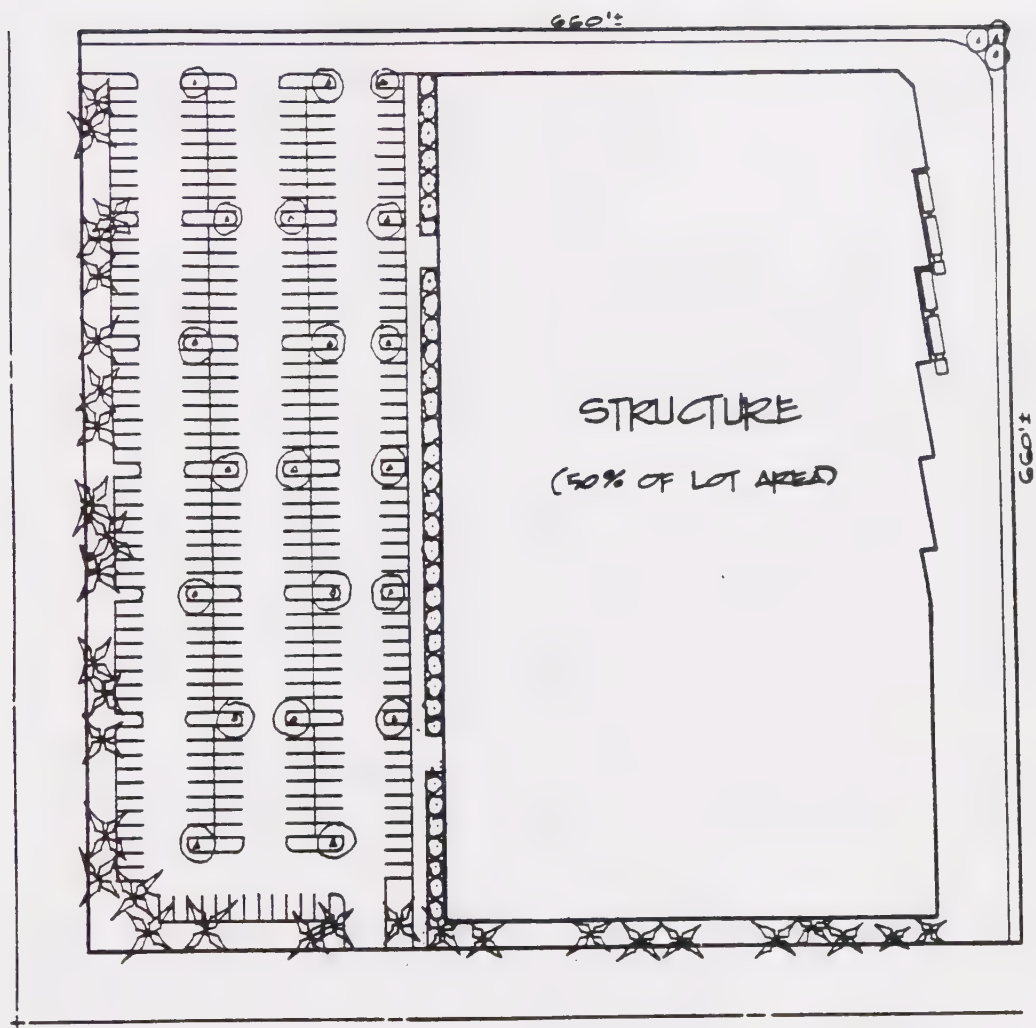
Typical 1½ Acre Site





Typical 2 1/4 Acre Site





Typical 10 Acre Site





manufacturing and non-manufacturing uses such as warehousing and distribution facilities to industrial plants. Building intensity in this land use category will be limited to 50% site coverage and a maximum building height of 45 feet.

A majority of the industrially designated property within the City is utilized by the Santa Fe Railroad classification yard and other railroad related uses. This is reflected on the Land Use Policy Map by a "railroad industrial" overlay designation. Any development within this area which is not directly related to railroad use is subject to the approval of a Conditional Use Permit.

- h. **Public/Quasi-Public:** Public and Quasi-Public uses include a wide range of public facility and public utility functions. School sites, government offices, utility and transportation easements, and libraries all fall within this land use designation. These uses are scattered throughout the City. Building intensities within this land use designation will vary, although intensities should not exceed a lot coverage of 45% and a height of 25 feet or two stories.
- i. **Recreational Opportunities:** The Open Space designation includes those areas now providing open space and recreation (i.e., City and County parks) as well as conservation resources (i.e., the Mojave River floodway). Open Space corridors have also been designated along major utility easements which cross the City. Recreational use within this area is subject to approval of a Conditional Use Permit. The critical consideration in the siting of recreational uses would be adequate separation and buffer from adjacent residential areas.
- j. **Transportation Related Services:** This category is intended to allow either industrial or commercial uses, subject to approval of a Conditional Use Permit, or an overall development plan by the Planning Commission.
- k. **Specific Plans/Infrastructure Financing Plan:** A key feature of the City's land use policy is the use of specific plans. Specific plans clarify development policy for given areas and can greatly facilitate development. Specific plans are to be used in two basic ways: 1) To encourage and speed the processing of large-scale private developments, and 2) to target certain areas of the City with particular planning needs. The use of the specific plan concept is an integral part of the land use policy and intended to help ensure that potential development is in keeping with General Plan goals and policies. Comprehensive specific plan guidelines for private developers are included as Appendix A of this Element.

Specific plans may be initiated and prepared either directly by the City of Barstow or by private development interests. City-prepared specific plans include the Lenwood Specific Plan and the West Main Specific Plan. An example of a private specific plan is the "Sun and Sky" development in the southwestern portion of the City. A minimum gross area of 40 acres is required for any specific plan. However,



individual private development is expected to occur within a given specific plan area once the specific plan is approved. The City-initiated specific plans include aggregations of privately-owned parcels, many of which are considerably smaller than 40 acres.

The specific plan land use designation is used both as a distinct land use classification, particularly in areas where there is a mix of land use types, as well as an overlay designation. The latter use of specific plans is generally applied to residentially-designated areas, in which case the underlying residential classification sets the overall number of dwelling units per acre allowed within the specific plan area.

1. **Residential Development - Incentive Overlay Areas:** The City will consider density bonuses within any residential General Plan Category in either of the following situations:

1. Twenty percent (20%) of the units constructed are set aside for lower-income households.
2. Developments are designed to meet the needs of target groups (such as senior citizens) identified in the City's Housing Element which also incorporate energy-efficient design and more than the usual amounts of amenities and landscaping.

The City will consider other incentives for providing housing meeting special needs, e.g. larger dwelling units for large families and planned residential developments to house management personnel currently commuting to Barstow from other areas.

Approval of density bonuses is contingent upon availability of adequate infrastructure and compatibility of adjacent land uses.

In addition, a specific "Residential Incentive Overlay Area" has been applied to an Urban Living (15 du/ac. max.) area north of Main Street in the vicinity of First Street. The intent of this designation is to encourage the development of residences in the immediate vicinity of downtown Barstow and stimulate the consolidation of undersized lots. Development up to a maximum of 25 dwelling units per acre is allowed within this area subject to the following conditions:

1. Recorded lots of 7,000 square feet or less can be developed at no more than 15 dwelling units per acre (i.e., the base land use classification);
2. A density bonus of one (1) dwelling unit per acre may be applied for every 1,500 square feet of lot area above a base lot size of 7,000 square feet up to a maximum of 25 dwelling units per acre. For example, an 8,500 square foot lot could be developed at 16 dwelling units per acre, a 10,000 square foot lot at 17 dwelling units per acre, etc., up to a 22,000-square foot or larger lot which could be developed at 25 dwelling units per acre;



3. Development projects specifically for senior citizens are subject to more liberal parking standards (i.e., one parking space per unit) than other types of multi-family development.

4. A Conditional Use Permit shall be obtained.

m. **Infrastructure Plans and Transportation Studies:** The General Plan calls for the preparation of "Infrastructure Plans" whenever it is determined by the Director of Community Development and Public Works that off-site improvements for a project have the potential for significantly affecting surrounding land use. An infrastructure plan or transportation study must address the following factors:

1. What are the type, size, length, and other improvements needed to serve the development under consideration?
2. How will the proposed infrastructure/transportation improvements affect and relate to surrounding existing, proposed, and potential development?
3. How will proposed infrastructure/transportation needs be financed?
4. How will proposed infrastructure systems or transportation facilities relate to and affect other infrastructure and public service systems within the City and Sphere of Influence?

n. **Transportation Corridor:** A "transportation corridor" land use designation overlay has been applied to areas within 500 feet of major arterial highways and freeways within the planning area. These are Interstate 15, Interstate 40, State Highway 58, Lenwood Road, Main Street, and Barstow Road. Development within the transportation corridor areas must give special consideration to access, aesthetics (i.e., how the development is viewed from the highway or freeway) and environmental factors, especially noise. Conditional Use Permits are required for all new development within the transportation corridor area unless the area was the subject of a specific plan, redevelopment plan, or other specific study which specifically addressed land use factors in relation to the adjacent transportation routes.

o. **Open Space:** The Open Space land use designation refers to three categories of open space: 1) land that is to remain undeveloped due to severe development constraints, 2) reserved public open space in parks, and 3) areas that are in agricultural preserves. This category includes the Mojave River flood plain, City parks, and agricultural areas adjacent to the Mojave River. Residential development is permitted in certain areas designated for "open space" when the underlying zoning is DL (Desert Living). Maximum residential development density is one (1) dwelling unit per five (5) acres.





- p. **Gateway:** The principal entrance/exit points from major highways are identified on the Land Use Policy Map. These "gateway" areas are subject to special entry treatments as defined in the policy section of the Community Development Element. In general, this is expected to take the form of a city identification monument-type sign with appropriate lighting.
- q. **Historic Resources:** The General Plan Land Use Policy Map identifies two areas which have particular historic interest: 1) the Santa Fe Train Station and Harvey House, and 2) an Indian petroglyph site on Buzzard Rock. General Plan policies encourage the preservation of the resources as important features of the community's heritage.
- r. **Transferable Development Density or Intensity:** Transferable development density or intensity is the reallocation or redistribution of density or land use intensity as shown on the General Plan. Increases in density or intensity in any area must be counterbalanced by corresponding reductions in density or intensity in the same general area. Transferable densities or intensities may only occur:
  - (1) When the property is under the same ownership, or where more than one ownership is involved, both parties have agreed to the resultant transfer or exchange of density/intensity.
  - (2) There is no change or increase in sewage discharge, water consumption or traffic, without offsetting mitigation measures. This policy is particularly applicable to the Lenwood Specific Plan area.

Approval of density transfers will be in the form of a Specific Plan, Planned Unit Development, or Mixed Use/Conditional Use Permit with provisions for guaranteed construction of infrastructure, and phasing is proportionally developed to meet overall intensity standards.

- s. **Santa Fe Drive Area:** Santa Fe Drive should be improved to City alley standards to adequately handle drainage in the area.

Existing residential lots on the north side of Santa Fe Drive should be allowed to remain. Each lot is capable of supporting two dwelling units. Under the existing M-U (Mixed Use) zoning, additional residential construction is subject to the approval of a Conditional Use Permit.

The south side of Santa Fe Drive should be utilized for commercial or light industrial uses (transportation related services).

### 3. Land Use Plan Capacity

An acreage breakdown of the areas illustrated on the Land Use Policy Map (Figure CD-1) is presented on Table CD-1. The total acreage and percentage by





TABLE CD-1

Barstow General Plan Land Use Policy  
Potential Development Buildout

Category	Acres
Residential Uses:	
Desert Living (2.0 du/ac. max.)	1,860
Desert Living/Specific Plan (2.0 du/ac. max.)	130
Desert Living/Recreational (2.0 du/ac. max.)	780
Neighborhood Residential (6.0 du/ac. max.)	3,000
Neighborhood Residential/Specific Plan (6.0 du/ac. max.)	430
Neighborhood Residential/Circulation Study (6.0 du/ac. max.)	180
Urban Living (15.0 du/ac. max.)	280
Residential Incentive (15.0 du/ac. max.)	20
General Commercial	150
Visitor-Serving Commercial	20
Administrative Center	40
Industrial	20
Railroad Industrial	1,190
Public	310
Medical/Community Facilities	30
Open Space	30
Mojave River	410
Specific Plan	1,520
Specific Plan/Circulation Study	460
Recreational Opportunities	130
Recreational Opportunities/Specific Plan	550
Historic Resource	0
Agriculture	200
Easements	390
Transportation Corridors:	
I-15	910
I-40	80
Main Street	720
Barstow Road	270
Lenwood Road	280
Total	23.2 sq. mi. 14,010



land use category are given. This table should be updated on a regular basis to reflect General Plan amendments and new developments.

The anticipated population of the planning area by the year 2000 is 32,000 persons based on an assumption of 2.57 persons per dwelling unit.

The General Plan provides guidance for the development of approximately 24,570 acres of land. Of the 14,010 acres within the Barstow corporate limits, the General Plan designates approximately 6,190 acres single-family residential, (Desert Zoning and Neighborhood Residential), approximately 230 acres multi-family residential (Urban Residential), 210 acres of commercial uses, 1,210 acres of industrial uses, and 5,130 acres of open space; specific plan, agricultural and recreational acres are also included. Approximately 990 acres of the project area is freeway right-of-way. The plan also permits for schools, parks, and other public facilities.

Residential densities and commercial and industrial building areas are based on the General Plan. Based on an average of three dwelling units per acre, the Land Use Policy allows for an estimated 18,570 new and existing single-family residential units. Based on an average of 15 dwelling units per acre, the Land Use Policy could accommodate 4,200 new and existing multi-family units.

Commercial uses within the project area may consist of such uses as general commercial, office commercial, commercial center, business park, village commercial, or mixed use. Building area or floor area ratios between these uses may vary. Based on the General Plan Land Use Policy, two million square feet of new and existing office development and as much as 4.5 million square feet of new and existing commercial development could be accommodated.

Light industrial land use designations may include uses such as light industry, office, or research and development use. Some mixed use commercial/industrial uses may also be considered in this category. Based on average site coverage standards of 50%, the General Plan allows for an estimated six million square feet of building space in the light industrial land use designation.

Transportation/visitors-serving commercial uses could potentially result in one million square feet of new development.



## D. Community Design

The Community Design Guidelines described in this section present the features and land use activities which comprise the City of Barstow's visual image. It is the presence, or the lack of these visual elements, which influences the City structure and characterizes how Barstow is perceived.

### 1. Issue Assessment

- a. Lack of design development of major circulation corridors.
- b. Need to protect and preserve major natural landforms and open space.
- c. Need for design treatment of the Civic Center including entry on Barstow Road and overall design theme.
- d. Need to identify and develop gateways to the City.
- e. Need for design treatment of the Central Business District including improvements of vehicular and pedestrian circulation, landscaping, and building facades.

### 2. General Plan Design Guidelines

Goal: The City shall provide design and aesthetic treatments and establish policy for development parcels on selected image corridors, gateways, and landmarks.

#### a. Image Corridors

Primary Image Corridors: The primary image corridor is defined as a zone that can have major influences on how one perceives the structure and character of a City. The following are the primary image corridors:

- 1) Interstate 15 through Lenwood Area. This segment of Interstate 15 is a major visual corridor as you enter and leave the City of Barstow. The corridor is over three miles in length and is mostly undeveloped. Landscape buffering along the interstate shall complement existing and future development. Buffering shall include views into open parking lots, service and storage areas and buildings. Views beyond to distant mountain ranges and valleys shall be maintained. Signage shall be addressed in a separate sign plan and implemented through the City Sign Ordinance.
- 2) Interstate 15 between Central and South Barstow. This segment of Interstate 15 is defined by the W. Main Street exit and the junction at I-15 and I-40. The existing edges consist of





residential, commercial, and vacant lots. Guidelines for future development, should include landscape buffering for views from the freeway.

- 3) Interstate 15 and 40 through North Barstow. These segments of Interstate 15 and 40 are the major westbound entrances into the City of Barstow. The Mojave River provides a strong visual identity for the City. It is recommended that vistas to the river be maintained and negative views such as open parking lots and service areas of future development be screened. Vegetation along this corridor shall be indigenous to the river.
- 4) Main Street Corridor "Business District". This business corridor includes the areas east and west of Main Street at the Central Business District. The recommendation is to frame the street with "pairs" of palms (*Washingtonia Robusta*) in the front setback area. The palms will maintain views into retail businesses as well as provide a consistent landscape theme and identity for the City.
- 5) Main Street "Central Business District". This segment of Main Street is the heart of the Central Business District. There is a Downtown Beautification Plan to improve this area. The improvement plans include special paving at pedestrian crossings, new street trees, a new plaza, landscape medians, and a new alignment of First Street.
- 6) Barstow Road. Barstow Road north of Interstate 15 is designated as a ceremonial entrance to the Civic Center and Central Business District. The recommendation is to frame the road with "pairs" of Mexican Fan Palms located in the setback areas. As the entrance to the Civic Center, the intersection of Mountain View and Barstow Road should be improved with special paving and sign identification.

Secondary Image Corridors: The secondary image corridor is defined as having the potential of a major corridor as development increases. The following is designated as a secondary image corridor:

- 1) Main Street "West." This segment of Main Street between Lenwood Road and the West Main Street exit is mostly undeveloped. Traveling on Main Street westerly into the Lenwood area, small commercial, industrial, and residential are visible from the street. The recommendation is to continue the Main Street palms as development occurs.

b. Gateways

The City shall provide for design and aesthetic treatment at the primary and secondary gateway entrances to the City.



Primary Gateway: The primary gateway is defined as a major City entrance point and demarcates a boundary for the City.

- 1) Lenwood Gateway. The main westerly gateway to the City of Barstow is located before the exit of Lenwood Road. The gateway is a landmark sign on a natural stone base welcoming visitors and citizens to the City.
- 2) East Gateways at Interstates 15 and 40. The easterly gateway to the City on Interstate 15 is located at the crest of the hill just past the Highway 58 exit. The gateway on Interstate 40 is located before Main Street exit. Both gateways are similar to the Lenwood gateway.

Secondary Gateway: The secondary gateway is defined as the City entrance point for regional and local visitors and demarcates a City boundary.

- 1) Main Street at Citrine Road; Barstow Road at the Barstow Community College; North First Street at the Harvey House. The recommendation is to provide signage indicating "Welcome to the City of Barstow."

c. Landmarks

There are two categories of landmarks which have been designated as significant features in Barstow:

Natural Landform. The landforms are geological features which visually influence the structure and identity of a city.

- 1) Buzzard Rock is located within Barstow and is a visual landmark which requires preservation and protection policies.
- 2) The Mojave River is the northern edge of the City and provides open space and recreational amenities for the City.

Historic Architectural Landmark. This landmark is significant architecture which exhibits the historical character and culture of Barstow.

- 1) The Harvey House is a prominent emblem for the City. The recommendation is to re-use this building in such a way as to preserve, promote and enhance its unique character.



## E. Land Use Goal Objectives and Policies

The Land Use Goal Objectives and Policy statements which follow were based on extensive background information collected during the initial phases of the General Plan program (see Environmental Assessment which accompanies the General Plan) and the assumption factors described in the previous subsection.

The General Plan Goal Objectives and Policies are the guiding directions for the Plan. They provide a way of judging whether or not proposed changes to the City's present land use are in keeping with the City's wishes for the future. A goal is defined as "the ultimate purpose of an effort stated in a way that is general in nature"; while a policy is "a specific statement guiding action and implying clear commitment".

The Objectives and Policies are heavily oriented towards helping the City provide for a safer and more healthful environment for residents and visitors.

### GOAL:

THE CITY SHOULD PROVIDE FOR AN ORDERLY BALANCE OF BOTH PUBLIC AND PRIVATE LAND USES WITHIN CONVENIENT AND COMPATIBLE LOCATIONS THROUGHOUT THE COMMUNITY AND ENSURE THAT ALL SUCH USES - THEIR TYPE, AMOUNT, DESIGN AND ARRANGEMENT - SERVE TO PROTECT AND ENHANCE THE CHARACTER AND IMAGE OF THE COMMUNITY.

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Objective 1.0 - Actively pursue measures which upgrade existing commercial and industrial areas.

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Policy 1.1 - Continue to investigate the congestion problems in the Main Street commercial district to determine methods of providing adequate parking, signaling and street upgrading. (The investigation should also include problems associated with non-vehicular-pedestrian traffic).

Policy 1.2 - Upgrading of existing commercial and industrial areas can be partially achieved through landscaping and other treatment to present a more aesthetically pleasing appearance, thereby reducing the "asphalt and concrete" natures of the establishments in these locales.

### Implementation

Measure 1.1 - In connection with current development policies, continue development of current circulation studies, capital improvement programming and implementation, and landscape/ streetscape improvement plans and actions.



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Objective 2.0 - Improve the downtown area as a viable and attractive commercial core. The "downtown area" is defined as that area bounded by Hutchison Street (north); Fredricks Street (south); May Street (west); and Seventh Street (east).

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Policy 2.1 - The City shall seek to maintain and enhance the economic viability of the downtown area by restricting the extent of other commercial areas of the community.

Policy 2.2 - Landscaping shall be incorporated as an integral part of redevelopment plans to enhance the quality and image of the downtown area.

Policy 2.3 - New facilities within the downtown area shall be conveniently located with good access and adequate landscaping.

Implementation

Measure 2.1 - Establish project priorities and the phasing of necessary public support facilities such as street improvements, sewer, water, drainage and electrical improvements and the undergrounding of utilities.

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Objective 3.0 - Coordinate the land use policies of various public agencies operating within the City's Sphere of Influence and corporate boundaries.

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Policy 3.1 - Agencies of the County, State and Federal Government, and special purpose districts (Fire District, park District, etc.) shall be notified as appropriate.

Policy 3.2 - General plans and zoning should be jointly adjusted within the City's sphere of influence to be made mutually compatible.

Policy 3.3 - Each jurisdiction should have the opportunity to review, prior to approval or denial, proposed changes to general plans and zoning.

Policy 3.4 - The City will investigate specific methods and procedures for gaining effective planning cooperation within its Sphere of Influence.

Policy 3.5 - The City will request that it be notified and permitted the opportunity to respond to proposed plans, standards, and implementation policies of each respective agency.





- Policy 3.6 - All land use proposals will be reviewed by respective legal counsel to determine liability to the City, School District, and any other applicable agencies and districts.
- Policy 3.7 - The City shall coordinate with the School District, utility companies and other public agencies regarding their various plans affecting the timing and extent of development.
- Policy 3.8 - The City shall provide guidance and direction to developers and land owners as to the timing and extent of new public facilities. Adequate public facilities should be available prior to construction.
- Policy 3.9 - Particular emphasis shall be placed on close coordination of land use planning with the Bureau of Land Management.

Implementation

- Measure 3.1 - Various district boundaries shall be reviewed to determine if these can be made conterminous for providing mutual aid services realistically not limited to district boundaries.

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**Objective 4.0 - Upgrade the quality of local residential neighborhoods.**

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- Policy 4.1 - The City will enforce its existing land use and building codes, particularly in residential areas to ensure quality of maintenance.
- Policy 4.2 - The City will regularly review existing codes and examine new construction methods and materials.
- Policy 4.3 - The City shall continue stringent code enforcement programs.

Implementation

- Measure 4.1 - City ordinances shall be updated and/or strengthened to:

- (1) regulate outdoor storage (including recreational vehicles);
- (2) encourage property maintenance;
- (3) provide incentives for rehabilitating and/or remodeling of existing residential units; and
- (4) abate residential units unsuitable for habitation because of health and safety problems.



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Objective 5.0 - Land uses with significant adverse environmental effects shall be prohibited or else permitted only under special conditions.

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Policy 5.1 - Land uses in the Barstow area which have been found to cause significant adverse environmental impacts shall be phased out, and after a reasonable time period, ceased by order of the appropriate local, state, or federal jurisdictions.

Implementation

Measure 5.1 - Where there is an unaddressed concern as to the impact of a proposed land use on the environment of the Barstow area, an environmental impact report shall be required. The environmental impact report shall be used to determine whether a significant adverse impact exists or will exist from such activity.

Implementation

Measure 5.2 - The following types of uses shall be permitted only under special conditions as defined by City staff and the City Planning Commission, then approved by the City Council, to ensure compatibility with adjacent land uses:

- (1) Commercial development that occurs in a linear pattern parallel to the adjacent roadway as opposed to commercial development that is clustered in neighborhood and regional centers;
- (2) Surface utilities;
- (3) Junk yards; and
- (4) Extreme "cut and fill" projects or major regrading of vacant land.
- (5) Sand, gravel, and other borrow operations are to be subject to a conditional use permit with particular concern that appropriate measures be taken for silt control, traffic routing, adequate screening, and restoration plans.

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Objective 6.0 - Discourage the continuation of existing strip commercial areas as well as the establishment of new strip commercial areas.

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Policy 6.1 - Concentrate land uses (e.g., restaurants, movie theaters) in commercial centers.

Policy 6.2 - The City shall periodically review current zoning to assure adequate and appropriate usage of commercial areas to serve future growth.

Implementation

Measure 6.1 - The City shall periodically review land use plans and zoning.

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**Objective 7.0 - Actively encourage new industrial development.**

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Policy 7.1 - The City shall periodically review land use to determine the amount of industrial land needed for the Barstow area.

Policy 7.2 - The City should encourage industries which have demonstrated their ability to meet local, state, and federal pollution control standards and prohibit those that do not.

Policy 7.3 - When possible, industrial uses should be grouped into large centers rather than dispersed throughout the planning area. These centers should have a landscaped, urban park quality.

Policy 7.4 - To assure a stable economic base and a variety of job opportunities, industrial centers shall be encouraged by the City to provide a diverse number and size of facilities ranging from small enterprises to large corporations.

Policy 7.5 - Wherever possible, industrial land uses shall be confined to areas where they will be physically separated from residential areas by buffer zones, major thoroughfares, or natural or man-made barriers. Industrial areas that are located adjacent to residential areas shall be adequately screened by physical and/or visual barriers.

Policy 7.6 - The City shall assist in the development of a marketing program in conjunction with the business community to attract new industry.

Policy 7.7 - Basic infrastructure to serve new industry should be planned and built by private development interests and, when possible, coordinated with and supplemented by an established C.I.P.

Policy 7.8 - New development shall provide innovative approaches and mechanisms to defray public service costs and pay its own way.

Implementation

Measure 7.1 - The City shall regularly review existing land use controls for industrial development with a view toward upgrading existing standards and criteria.





Implementation

Measure 7.2 - Traffic circulation, including truck loading and unloading, to and from a development shall be regulated by the City based on the interest of public safety.

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Objective 8.0 - Upgrade building and planning enforcement in adjacent unincorporated county areas.

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Policy 8.1 - Efforts shall be made to correlate and develop consistency in building and planning development standards for City and County areas in the Greater Barstow area.

Implementation

Measure 8.1 - The City will continue efforts with the County to insure consistency between County and City standards.

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Objective 9.0 - Encourage tourism as a key component of the local economy.

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Policy 9.1 - The City shall actively seek ways to attract and maintain tourist-oriented commercial and recreational developments.

Policy 9.2 - Land development priorities should be directed toward those commercial uses which maximize revenues, minimize required services, and do not add to population growth pressures.

Policy 9.3 - The City shall actively promote the development of more public facilities oriented to the tourist trade such as rest stops, public recreational facilities such as golf courses and tennis courts, picnic facilities and overnight camping facilities.

Policy 9.4 - The City shall encourage the promotion of Barstow as an equestrian center with supporting facilities and trail systems.

Policy 9.5 - Efforts should be made to promote more varied entertainment opportunities for all segments of the communities.

Policy 9.6 - A program should be developed to accent the Barstow area historical heritage.

Implementation

Measure 9.1 - As a part of the effort of promoting tourism, the City shall encourage these possible activities:



- A golf course and supporting facilities;
- A "tourist" train from Barstow to Calico;
- A golf driving range (with night lights);
- A miniature golf course;
- An equestrian center (including rodeo facilities);  
and
- Water Sports Complex.

Implementation

Measure 9.2 - The City shall encourage an aggressive marketing program to promote the Barstow area as a tourist destination.

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Objective 10.0 - Certain areas in Barstow should receive priority for "clean up" and/or maintenance incentives.

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Policy 10.1 - "Clean up" and maintenance on an ongoing basis is strongly encouraged.

Implementation

Measure 10.1 - The following areas shall receive priority in terms of upgrading the community:

- Arterial highways
- All major entryways into Barstow

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Objective 11.0 - Specific areas in Barstow should be subject to redevelopment.

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Policy 11.1 - The Redevelopment Agency (RDA) shall set as its highest priority the preparation of redevelopment plans and programs with strong emphasis on financial alternatives to spur redevelopment (including appropriate commitment of tax increment monies).

Policy 11.2 - Priority for immediate redevelopment projects shall be given to the "downtown" area.

Policy 11.3 - The RDA project area should have architectural and sign standards developed to provide a cohesive attractive business area.



Policy 11.4 - The RDA should "invest" available funds in projects which will encourage development and create a monetary return to the RDA through increased property values.

Policy 11.5 - The RDA should make efforts to coordinate activities with other agencies (e.g., parks, schools, Fire District).

Implementation

Measure 11.1 - Continue to pursue identified projects within the Redevelopment boundaries.

---

**Objective 12.0 - Areas of historical importance should be permanently preserved.**

---

Policy 12.1 - The City should help coordinate the efforts of interested groups and organizations concerning areas of historical importance in Barstow.

Policy 12.2 - The City shall encourage efforts to collect and preserve available local historical resources.

Policy 12.3 - The City shall make every effort to preserve all historical landmarks as identified by the State of California, Federal Government and/or the County of San Bernardino.

Policy 12.4 - Where possible, archaeological sites or artifacts judged to be of value shall be preserved.

Policy 12.5 - The City shall explore potential State and Federal funds for historical preservation.

Implementation

Measure 12.1 - The City shall explore the feasibility of establishing a historical preservation ordinance.

Implementation

Measure 12.2 - Specific investigation shall be made of the following potential historical sites:

-Indian petroglyphs (Citywide); and

-Harvey House and railway station.

---

**Objective 13.0 - Encourage additional medical/health facilities and services.**

---



Policy 13.1 - The City should actively encourage the development of additional convalescent facilities in Barstow.

Policy 13.2 - The City shall aggressively pursue the expansion/rehabilitation or replacement of the Barstow Community Hospital.

Implementation

- Measure 13.1
- A comprehensive plan for providing adequate medical facilities and services to the Greater Barstow area should include the following:
  - A detailed inventory of existing facilities and services and an analysis of any present deficiencies;
  - The establishment of viable alternatives to increase the quality of existing facilities and services; and
  - Expansion of types of medical services such as substance abuse, psychiatric, and rehabilitation programs.

---

Objective 14.0 - Major deficiencies in governmental services should be identified and eliminated.

---

Implementation

- Measure 14.1
- An inventory should be conducted to determine what services and facilities are available and the magnitude of need for any additional services or facilities.

---

Objective 15.0 - Educational opportunities within the Barstow area should be improved.

---

- Policy 15.1
- The City shall support the following:
    - Development of a four-year college or degree program.
    - Higher educational standards.
    - Expanded sports/athletics program.
    - Development of a trade school.





Community Development Element  
Technical Report





CITY OF BARSTOW GENERAL PLAN

Community Development Element  
Technical Report

August, 1987

Cotton/Beland/Associates, Inc.  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104

#424



## 1.0 Introduction

This report serves as a "technical appendix" to the Community Development Element for the City of Barstow General Plan. The Community Development Element, in turn, serves as the land use element for the General Plan. The Community Development Element and the supporting technical appendix defines the "land use policy framework" around which general plan goals and policies are constructed.

This technical report is specifically concerned with identifying the nature, extent and location of existing land uses within the planning area. Members of the CBA team performed a number of windshield land use surveys which involved driving sections of the City. This data was then transferred to base maps which were then checked against the most recent aerial photographs. Additional data was obtained from a variety of sources and used to develop a current, comprehensive inventory of existing land uses.





## 2.0 Description of Existing Land Use

### 2.1 Planning Area Characteristics

The "study area" considered in the Community Development Element includes all of the land area presently within the corporate boundaries of the City of Barstow and unincorporated areas immediately adjacent to the City. These unincorporated areas are presently under the jurisdiction of San Bernardino County though have been designated as being within the City's "Sphere of Influence". The Sphere of Influence is determined by the San Bernardino County Local Agency Formation Commission. Consideration of these unincorporated areas in this General Plan Update is crucial since the Sphere of Influence identifies County areas that may be subject to future annexation. The unincorporated areas within the Sphere of Influence considered as part of the Barstow planning area include the communities of Lenwood, Grandview, Barstow Heights, North Barstow and East Barstow.

Land uses described in this Technical Report were identified using a variety of methods and data sources. Preliminary land use maps were constructed using information obtained from earlier maps and aerial photographs. Certain areas could not be identified through examination of historical maps or aerial interpretation alone. In these instances, field checks were made to establish the identification of a particular land use or activity. The acreage of land area for each land use category was then tabulated from maps created using the various sources.

The entire land area presently included within the City's Sphere of Influence is divided into five planning areas. These areas are based on current development patterns or physical features. Figure CD-1 illustrates the location of these planning areas, each of which has been named to provide a convenient method for identification. The individual planning areas are described below.

**North Barstow** - This area includes all the land within the Sphere of Influence north of the Mojave River. This planning area includes scattered residential development located northwest of State Highway 58. In addition, much of the area is within the historic flood plain and is involved in agricultural production.

**Central Barstow** - The Central Barstow planning area includes most of the older portions of the City north of I-15 and south of the Mojave River. The central business district, the railroad classification yard, and many older neighborhoods are located within this planning area.

**Lenwood** - The Lenwood planning area includes the unincorporated communities of Lenwood and Grandview. The vast majority of the land within this planning area remains undeveloped.



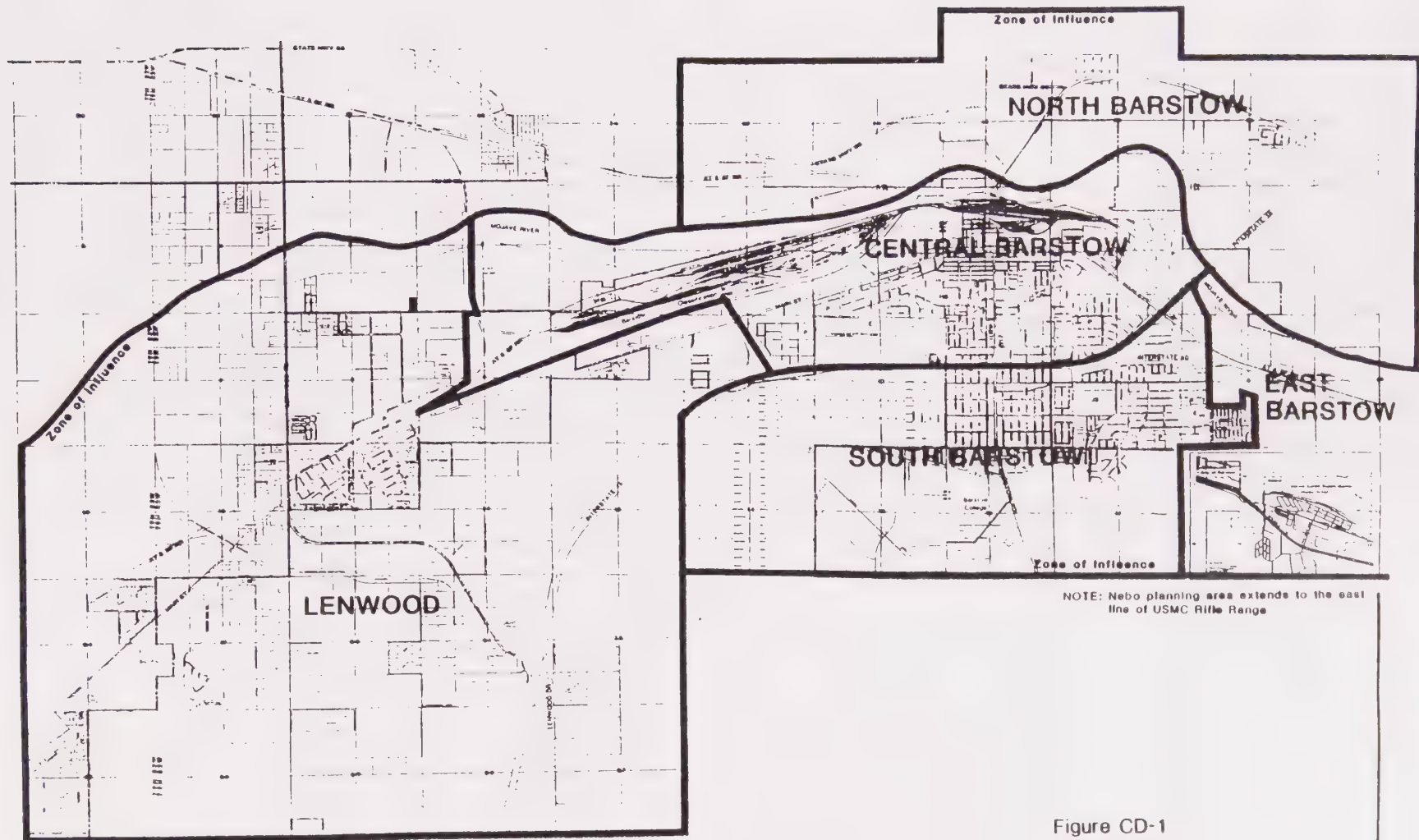


Figure CD-1  
Planning Areas

North  
4000  
scale in feet

BARSTOW  
GENERAL PLAN



South Barstow - This planning area encompasses the area south of I-40 and east of "O" Street. Included in this planning area is the unincorporated community of Barstow Heights.

East Barstow - The Nebo planning area begins at the eastern end of the corporate City limits and includes all of the U.S. Marine Corps Logistics Base to the east line of the rifle range.

## 2.2 Classification of Existing Land Use

For purposes of analysis, existing land uses within the planning area are divided into five broad categories or designations: (1) residential, (2) commercial, (3) industrial, (4) public facilities, and (5) open space.

**Residential** - Residential land uses are subdivided into categories that generally reflect the density of existing residential development. These designations emphasize the characteristics of existing development rather than the zoning or general plan designations which are concerned with the allowable or "preferred" uses. These categories include rural residential, single-family, multiple-family, and mobile-home park.

The rural residential category concerns those areas where sparse or large lot residential development has occurred. Examples of this type include the sparsely developed subdivisions located in Barstow Heights and other unincorporated areas south of I-15.

Single-family residential development is characterized by those residential neighborhoods or subdivisions that are completely developed or approaching "build-out". The majority of the land within the City designated as residential is in this category. Much of the "older" neighborhoods within the corporate boundaries of the City as well as scattered subdivisions in the periphery of existing development approaching "build-out" are categorized as single-family residential.

Apartments and condominium developments are included in the multi-family development category. Multi-family development is generally located in the Central and South Barstow planning areas.

The mobile-home parks are included in a separate and district category to reflect the unique character of this type of development. Residential development in this category is characterized by subdivisions or "parks" devoted exclusively to mobile homes or manufactured housing.

**Commercial** - The commercial land use designation refers to a wide range of retailing, administrative, and service-related activities. Existing commercial development in the City of Barstow may be described in terms of three types of development patterns.





The first type of commercial development pattern is commonly referred to as "strip-commercial". Development of this type is characterized by continuous commercial development along a major roadway that may extend for several miles. Much of the land area adjacent to Main Street extending from LaVerne Avenue in the west continuing eastward to the point where Main Street merges with I-40 is categorized as strip commercial. This commercial strip is approximately five miles in length and includes the central business district or downtown.

A second pattern is characterized by large concentrations of commercial activities at strategically located centers. Examples of this type of development pattern include centers located along Main Street, east of the central business district.

Finally, the third commercial development pattern is characterized by small modes of "highway commercial" activities located in small clusters at strategic intersections or freeway interchanges. Activities located at these "nodes" generally cater to motorists traveling to and from points outside the planning area.

**Industrial** - This category is characterized by industrial activities located in the general vicinity of Main Street in the Central Barstow planning area. A second smaller concentration of industrial development is located in the South Barstow planning area at the junction of the I-40 and I-15 freeways.

**Rail Facilities** - Barstow has traditionally been a rail center for east-west trains connecting central and southern California with Arizona and Nevada. The tracks are used by the Union Pacific and Atchison, Topeka, and Santa Fe railroads. In addition, Santa Fe operates a classification yard and a repair shop. The classification yards and repair shop are located north of Main Street from Jasper Road to Yucca Avenue.

**Public/Quasi-Public** - This category of land use includes a wide array of different activities including schools, City and County Government facilities, and other public and institutional uses.

**Open Space** - The open space within the planning area has been subdivided into four subcategories: Mojave River flood plain, subdivided vacant land, undeveloped vacant land, and public parks.

The flood plain subcategory refers to land that should not be developed due to significant flood hazards or other natural characteristics. Much of the areas subject to periodic flooding are located in the well-defined flood plain of the Mojave River.





Substantial portions of the planning area have been subdivided though development has yet to occur. Open space land in this category is considered to be in transition from the previous undeveloped state to some form of urban land use. This category differs from the residential category of "very low density/open space development" in that the former describes land that has not yet been developed and remains in its natural state while the latter consists of streets and scattered development. Most large tracts of land in this category are located on the periphery of the developed portion of the planning area. Other undeveloped land included in this category has not yet been subdivided.

The final category of open space is concerned with land permanently set aside for recreational purposes. This category includes municipal recreation facilities operated by the Parks and Recreation District. The total area of land exclusively devoted to recreational open space is 102 acres.

**Military** - The U.S. Marine Corps Logistics Base, Nebo Annex, is located in the Nebo planning area. This facility includes base headquarters, post exchange, recreational facilities, and military housing. In addition, the base rifle range was acquired in 1955 and is located 1/2 mile south east of the Nebo Annex. The City of Barstow will have no authority over land use within the military reservation.

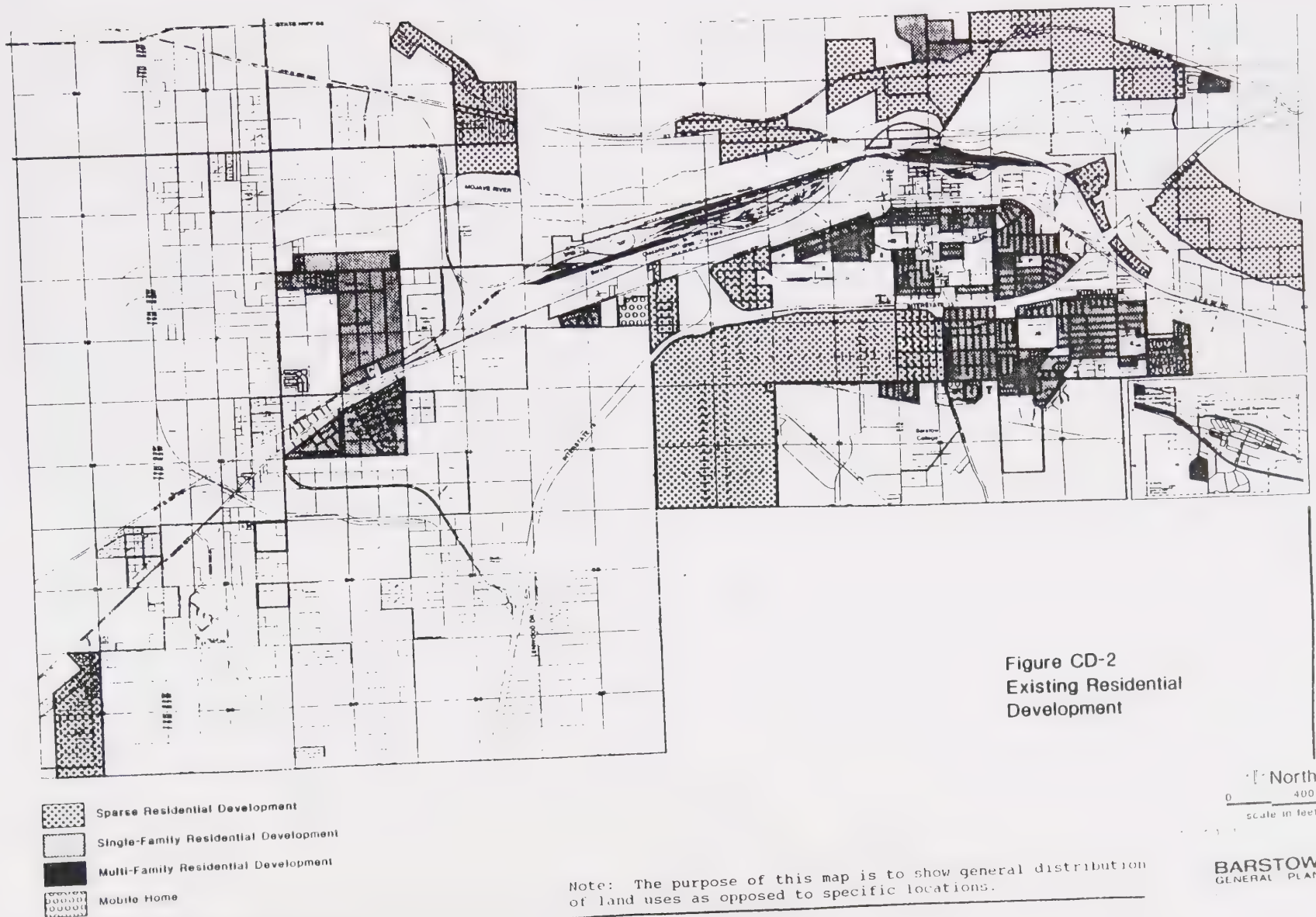


TABLE CD-1: EXISTING LAND USE-1986

Land Use Category	Incorporated (City of Barstow)	Unincorporated (Co. of San Bernardino)	Total (Entire Planning Area)
Residential	1,066	3,068	4,134
rural residential	94	2,419	2,513
single-family residential	641	512	1,153
multiple-family residential	182	4	186
mobile-home parks	76	133	209
country-club	73	0	73
Commercial	476	0	476
general commercial	432	0	432
office professional	44	0	44
Industrial	820	255	1,075
Rail Facilities	700	0	700
Public/Quasi-Public	391	12	403
schools	278	12	290
military reservation	113	0	113
Open Space			
parks	82	20	102
undeveloped	10,475	7,206	17,681
Total	14,010 21 sq.mi	10,561	24,571 38.40 sq.mi.

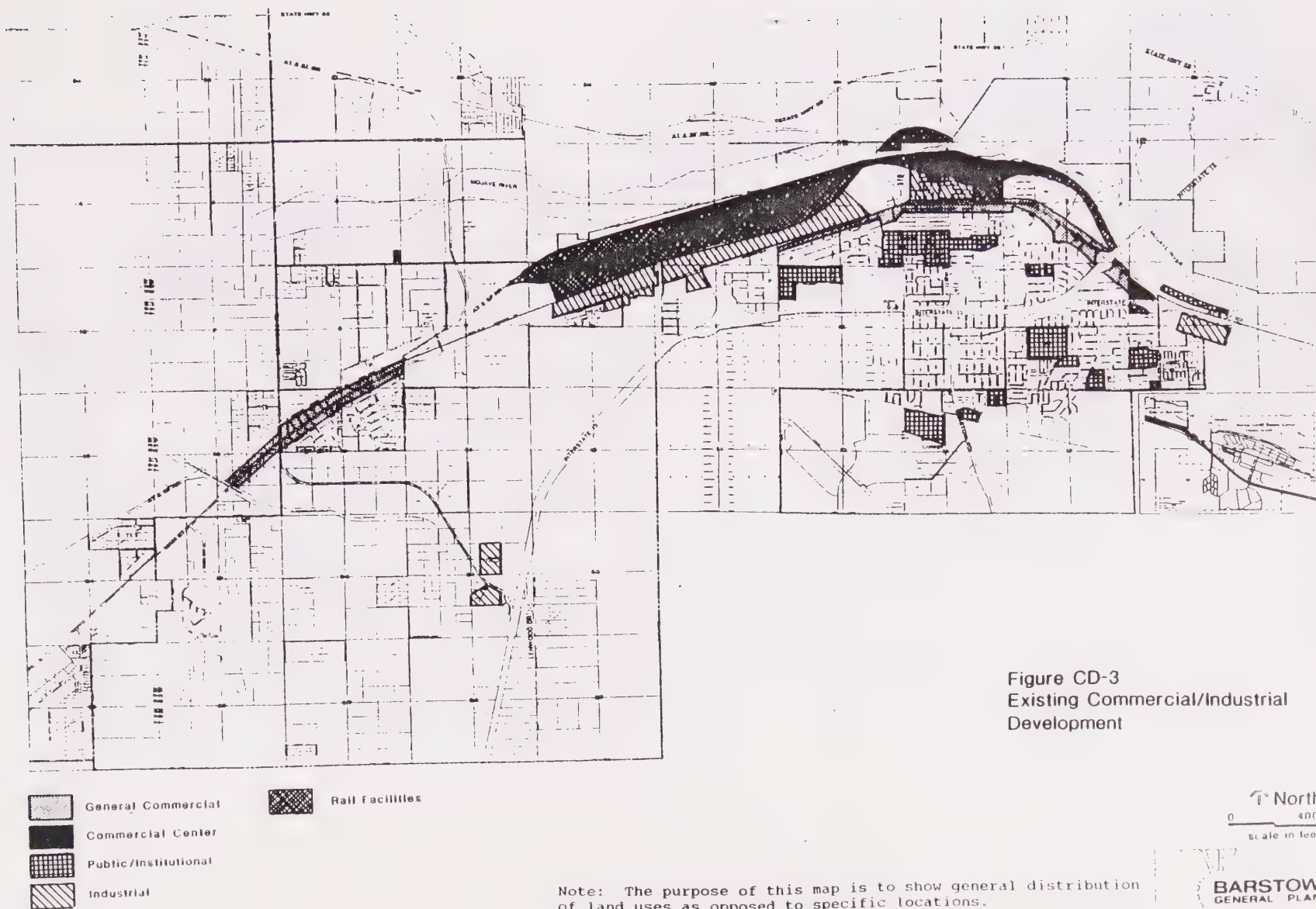
Sources: City of Barstow, CBA













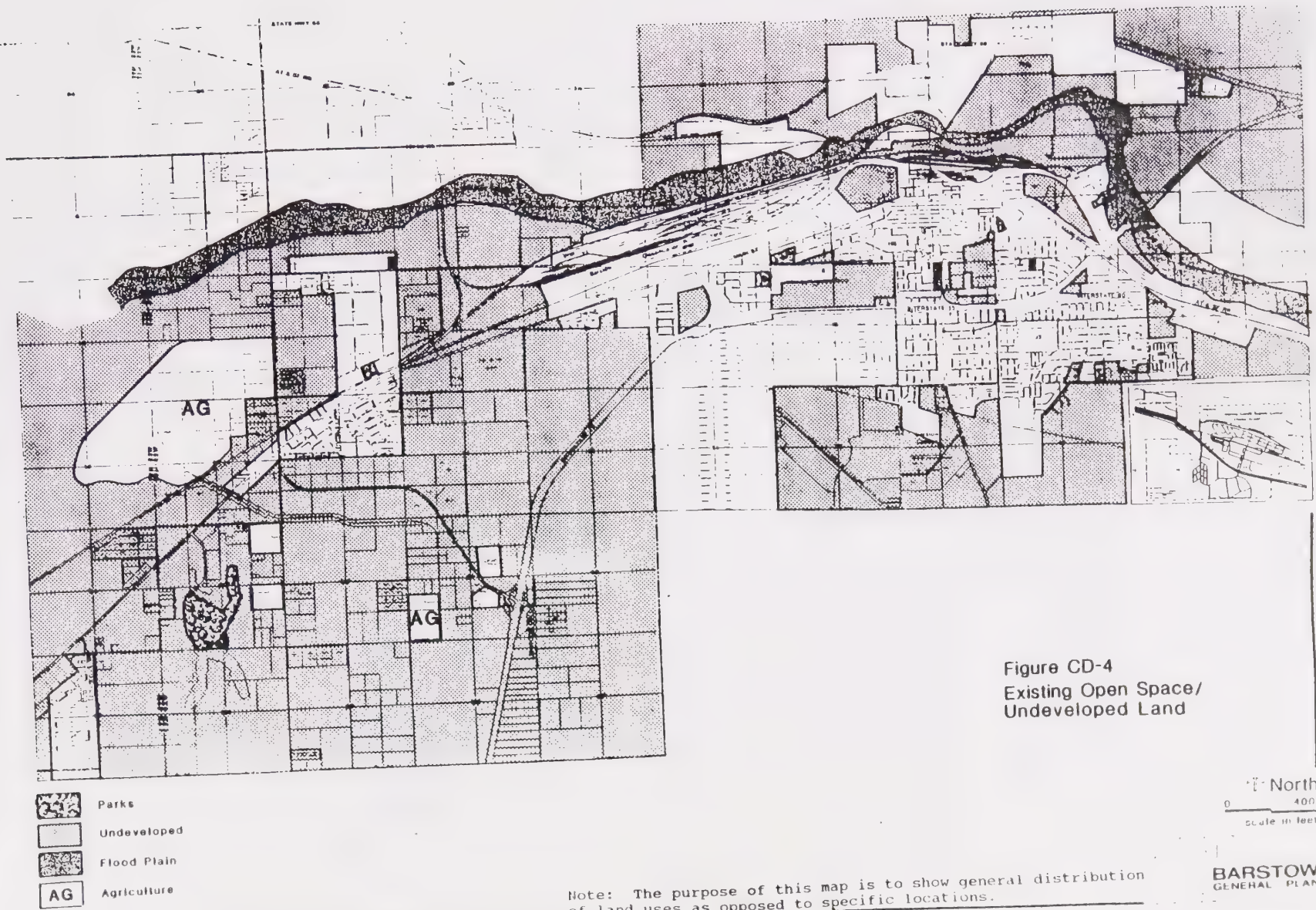


Figure CD-4  
Existing Open Space/  
Undeveloped Land

North  
0 4000  
Scale in feet

BARSTOW  
GENERAL PLAN





### 3.0 Development Trends

#### 3.1 Population Growth

The population of Barstow as of January 1, 1986, was estimated by the California Department of Finance to be 20,050. The 1986 population represents a 15 percent increase over 1970 census figures and a 13 percent increase from 1980. This increase is attributable to immigration and the influences of the nearby Fort Irwin and Marine Corps Logistics Base. Annexations have generally involved undeveloped land. The population of Barstow from 1970 through 1986 is shown in Table CD-2.

The minor population growth in Barstow which occurred between 1970 and 1980 increased dramatically between 1981 and 1985. From 1970 to 1973, Barstow experienced a minor, continued decrease in population. This decline was a result, in part, of reduced operations at Fort Irwin. In turn, the dramatic increase between 1981 and 1986 is primarily due to the re-opening of Fort Irwin and expanded military activities at the Nebo Center. Barstow serves as the source of housing and provides a civilian employee pool for these facilities.

Between 1970 and 1980, Barstow experienced only a minor increase in growth while other cities and unincorporated areas of the county experienced significant growth (see Table CD-3). Growth significantly increased from 1980 through 1985, more closely paralleling growth of other cities and the county as a whole.

Population projections indicate continued growth of the Barstow area. The Department of Finance projects the population to be approximately 23,800 persons by the year 1990. This would represent a 20.8 percent increase from 1985.

While the City's population did not change greatly between 1970 and 1980, its character has. Since 1970 there has been an increase in the population over 65 years of age and decrease in the population under 19 (see Table CD-4). The median age in Barstow has risen from 24 years of age in 1970 to 27 years of age in 1980. Current data are not available to determine the ethnic and racial make up of Barstow. The 1980 census may not be an accurate reflection of current trends occurring in the City.



TABLE CDTR-2  
ANNUAL INCREASE IN POPULATION 1970-1986

Year	Population	Increase	Percentage
1986	20,050	350	1.8
1985	19,700	450	2.3
1984	19,250	450	2.4
1983	18,800	550	3.0
1982	18,250	500	2.8
1981	17,750	60	0.3
1980	17,690	(60)	(0.3)
1979	17,750	50	0.3
1978	17,700	150	0.9
1977	17,550	450	2.6
1976	17,100	250	1.5
1975	16,850	100	0.6
1974	16,750	200	1.2
1973	16,550	(400)	(2.3)
1972	16,950	(350)	(2.0)
1971	17,300	(142)	(0.8)

Source: State of California, Department of Finance, Population Research Unit. All counts as of January 1 of the year given.

TABLE CDTR-3  
POPULATION TRENDS: SELECTED SAN BERNARDINO COUNTY CITIES

City	Year				Percent Change		
	1970	1980	1985	1986	1970-1980	1980-1985	1985-1986
Adelanto	N/A	2,160	3,890	4,430	N/A	80.1	13.9
Barstow	17,442	17,690	19,700	20,050	1.4	11.4	1.8
Needles	4,051	4,120	4,400	5,100	1.7	6.8	15.9
Redlands	36,355	42,800	49,930	51,600	17.7	16.6	3.3
San Bernardino	106,869	117,600	134,651	137,400	10.0	14.5	2.0
Victorville	10,845	13,900	20,233	23,000	28.1	45.6	13.7
San Bernardino County	681,233	878,000	1,053,771	1,110,500	28.7	20.0	5.4

Sources: U.S. Census  
State of California, Department of Finance, 1986  
San Bernardino County Association of Governments.





TABLE CDTR-4

## AGE CHARACTERISTICS: BARSTOW 1970-1980

AGE RANGE	1970		1980	
	Persons	%	Persons	%
0 - 4 (Preschool)	1,699	9.7	1,542	8.7
5 - 18 (School)	5,769	33.1	4,594	26.0
19 - 24 (College)	1,488	8.5	2,120	12.0
25 - 54 (Working)	6,474	37.1	6,463	36.5
55 - 59 (Early Retirement)	711	4.1	908	5.1
60 - 64 (Retirement)	520	3.0	722	4.1
65+ (Senior Citizen)	781	4.5	1,341	7.6
Median Age	24.02		27.0	

Source: U.S. Census

### 3.2 Land Use Trends

Early development in the city was directly linked to the Santa Fe Railway Company, which erected a depot and hotel on the south bank of the Mojave River. The original city was located north of the Santa Fe tracks though development eventually moved south as the rail facilities were expanded. Eventually, the railroad acquired almost all the land south of Main Street to the river, which concerned many local businessmen who were intent on obtaining prime locations adjacent to the proposed State highways.

Commercial development expanded along the entire length of Main Street as it passed through the incorporated portions of the planning area. Smaller commercial centers were developed at freeway interchanges to take advantage of highway traffic on I-15 and I-40. The majority of new commercial development continues to be located along Main Street. Much of this new development is concentrated in an area between Yucca Avenue eastward to where Main Street terminates at I-40.

A citywide land use survey was conducted in 1976 as part of the General Plan program. Comparison between the earlier land use survey and land use data obtained and mapped as part of the 1986 General Plan Update proved difficult for several reasons.



First, the level of accuracy between the two surveys may be very different. Differences in land use measurements for the two periods may be more a function of measurement error rather than actual changes in land use.

A second important consideration involves the planning area at the time the land use measurements were taken. Since the earlier survey in 1976, the City has annexed land which was not included in the earlier survey. As a result, some increases in development in the city may be due in part to annexation rather than actual increases in development. The results of the 1976 survey are presented on Table CD-5.

TABLE CDTR-5  
LAND USE 1976

Land Use Category	Acres	%
Residential	1,201	9.0
Commercial	255	1.9
Industrial	112	0.8
Classification Yard	1,136	8.5
Public/Quasi Public	441	3.3
Transportation	417	3.1
Vacant Land	9,755	73.3
TOTAL AREA	13,317	99.9

Source: City of Barstow  
CBA



### 3.3 Economic Trends

Barstow's economic base is the result of the city's location near major transportation links and its proximity to several large military facilities. Two employment sectors, government and transportation, account for a majority of the region's economic base. In recent years, there has been a trend towards the diversification of the city's economic base with the expansion of both commercial and industrial development in the region. The U.S. Census in 1980 classified 8,323 persons living within Barstow as being within the labor force. Of this total, 8,122 persons were in the civilian labor force. In 1980, when the census was taken, the unemployment rate was 6.8 percent which was lower than the County unemployment rate of 7.4 percent for that same period.

The total civilian labor force employed in 1980 numbered 7,568 persons with 3.7 percent employed in manufacturing, 24.3 percent in wholesale and retail trade, and 17.0 percent in professional and related services. Of those living in the city and employed in 1980, 66.4 percent were working in Barstow and 24.9 percent worked elsewhere in San Bernardino County.

TABLE CDTR-6  
FORT IRWIN POPULATION AND HOUSING DATA

Post Physical Plant Data (DEH)		Post Population (DPCA)	
Size (Acres)	636,182	Military	3,953
Size (Square Miles)	1,000	Military Family Members	4,771
Size (Square Kilometers)	2,590	Contracted Civilians	1,157
		DA and NAF Civilians	761
<u>Family Housing Units</u>		PX Employees	118
Officer	221	Corps of Engineer Civilians	22
Enlisted	882	Teachers	34
Mobile Home Pads (All Ranks)	40	MATES	99
Total	<u>1,143</u>	Total	<u>10,915</u>
<u>Bachelor Officer/NCO Quarters</u>		<u>Other Personnel Data (DPCA)</u>	
Officer	128	Military Personnel, on-post	2,518
Enlisted	70	Military Personnel, off-post	1,435
Total	<u>198</u>	Family Members, on-post	2,500
		Family Members, off-post	2,271
<u>Guest Housing Units</u>		Retirees in the Surrounding Area	1,037
All Ranks	10	Single Soldiers	1,828
Under Construction	21	Married Soldiers	2,125
Transient Housing	16	Males	3,683
		Females	270
<u>Enlisted Barracks Spaces</u>			
New Troop Barracks	528		
Renovated Barracks	648		
Under Construction	688		
Total	<u>1,864</u>		



The major military facilities located near the city included Fort Irwin, located twenty-seven miles northeast of Barstow and the U.S. Marine Corps' Logistics Base located within the East Barstow planning area. Fort Irwin is the largest employer within the Barstow area with over 3,700 active duty personnel and 2,400 civilians. (See Table CD-6 for Fort Irwin population and housing data.) An estimated 545 active duty personnel and 2,300 civilians are employed at the Marine Corps facility. The Department of Defense recently approved construction of 500 housing units for personnel stationed at Fort Irwin which will result in a yet undetermined increase in construction-related employment. Fort Irwin contains 1,143 family housing units; 1,864 barracks spaces; and 234 guest, bachelor office, and NCO units.

The Santa Fe Railroad continues to be a major employer within the Barstow area with many of those working in the classification yard. Commercial employment has increased in recent years with the expansion of retail commercial development in the City.

Employment figures for 1984 show 8,700 people employed within the City limits of Barstow. Employment projections for the year 2010 are 13,100 jobs, which indicate a 51% increase (Source: Southern California Association of Governments).





#### 4.0 Existing Land Use Plans

State law requires that a general plan be not only internally consistent but also consistent with the zoning ordinance and zoning map as well. Most of the recent case law concerning general plans dealt with the issue of consistency with zoning and capital improvement plans. The intent of the law is that each of the elements of the General Plan be based on a common set of facts and projections of population density and building intensity. Subsequent changes to the General Plan, zoning ordinance, or capital improvements programs in the City should trigger a review of all the other elements and ordinances to ensure internal consistency, and any revisions should be made simultaneously.

#### 4.1 City of Barstow Zoning Ordinance

The City of Barstow Zoning Ordinance was first adopted in 1979. The Zoning Ordinance established eighteen land use districts. Eight districts apply to residential development, five are applicable to commercial development, two refer to industrial development, and one district each refers to open space, precise plans, and planned unit developments. Table CD-7 identifies the eighteen zoning districts and their corresponding acreage. A Specific Plan Ordinance will be prepared in the near future.

TABLE CDTR-7  
CITY OF BARSTOW  
ZONING DISTRICTS AREA

Zoning District		Area (Acres)
DL	Desert Living	4,230
DR	Desert Ranchette	0
RS-16	Residential (16,000 sq. ft. min.)	975
RS-9	Residential (9,000 sq. ft. min.)	964
RS-6	Residential (6,000 sq. ft. min.)	2,142
RM-1	Residential, Multiple	172
RM-2	Residential, Multiple (apts)	368
MHS	Mobile Home Subdivision	338
NB	Neighborhood Business	+ 2
CG	Commercial, General	203
CH	Commercial, Highway	554
OP	Office Professional	55
MU	Mixed Use	269
M-1	Manufacturing, Light	996
M-2	Manufacturing, Heavy	1,921
O	Open Space District	
T	Precise Planned District	92
PUD	Planned Unit Development	582
		<hr/> 14,019



#### 4.2 Previous General Plan

The previous Land Use Element of the City of Barstow General Plan was adopted in July 1976 and contains the categories of land use. The land use policy map described nineteen categories of land use which differ from those actually described in the Land Use Element. The acreages of land included in each land use category as defined in the 1976 Land Use Element, are shown in Table CD-8. Since 1976, several new land use categories were added including mixed use, commercial study zone and government land.

#### 4.3 San Bernardino County Zoning Ordinance/General Plan

A significant portion of the planning area is outside the incorporated boundaries of the City and, thus, is subject to the provisions of the San Bernardino County General Plan. The County is also responsible for administering its zoning ordinance in those unincorporated areas.

#### 4.4 Capital Improvement Program

The City's Capital Improvement Program (CIP) should be reviewed in the context of the General Plan to insure that plans for major capital improvements are consistent with the goals and policies outlined in the General Plan. A finding of consistency between the General Plan and the CIP should be made prior to the approval of certain major capital improvements and as a condition for approval of the CIP.

#### 4.5 Specific Plans

State law permits the development of specific plans which combine the effect of general planning and zoning for the areas they cover. Specific plans permit the development of specialized and more detailed land use designations and development standards than those which can be achieved through applications of zoning standards developed for the whole City.

Two specific plans are currently under preparation and will be coordinated with the General Plan update. The two plans include the Lenwood/I-15 area and the West Main Street area.



TABLE CDTR-8  
LAND USE ALLOCATION IN 1976

Land Use	Existing Uses 1976 (1)		Land Use Element 1976 (2)	
	Units	Acres	Units	Acres
Residential				
Very Low Density (0.2 DU/AC)	0	0	3,000	15,000
Low Density (2.0 DU/AC)	0	0	426	300
Medium Density (3.5 DU/AC)	508	205	3,694	1,138
Medium High Density (5.0 DU/AC)	3,221	801	4,931	1,133
High Density (18.0 DU/AC)	2,193	194	2,859	231
Commercial	--	254	--	315
Industrial	--	1,303	--	1,443
Office	--	0	--	50
Public/Institutional	--	441	--	500
Open Space	--	9,755	--	12,890
Ttoals	5,922	12,953 (3)	14,910 (3)	33,000

Notes:

(1) Existing land use figures include only areas in Barstow City limits. In addition, the following represents areas outside City limits:

Very Low Density: None existing  
 Low Density: 326 units on 250 acres  
 Medium Density: 298 units on 250 acres  
 Medium Density: 298 units on 125 acres  
 Medium High Density: 434 units on 115 acres  
 High Density: None existing

(2) Proposed figures include entire barstow planning area.

(3) Existing and Proposed figures include 1,191 acres of railroads rights-of-way and railroad yard area.

Table does not include 361 acres of highway rights-of-way.

Source: City of Barstow



## 5.0 Constraints to Development

The physical constraints on development in Barstow can be divided into two types - infrastructure constraints and environmental constraints. Infrastructure constraints are related to the man-made public facilities, such as sewer, electricity or water, available to a piece of property within the City. Environmental constraints involve natural hazards or lands potentially adversely affected by development. Public services refer to essential services such as schools, law enforcement, and fire protection that must be provided to the City's residents.

### 5.1 Infrastructure/Public Services Constraints

Water Service - At this time, the aquifer which serves the Barstow area is sufficient to meet the water demands of existing residential and commercial/industrial land uses. This is expected to continue to be the case for the next 10 years. After that time, however, sufficient water supply to the area may be a problem. Barstow's water is currently supplied by wells which tap the Mojave River which runs through the City. The Mojave flows from the south through the Victorville/Apple Valley area. As these areas become more urbanized and further tap this water supply, the supply of water available to Barstow could diminish. The Mojave Water Authority is currently studying this potential problem in terms of water rights and adequate water supplies. Findings made by this study will serve as a basis for the development of policies to guide future development in the Victorville/Apple Valley and Barstow areas.

Sewer Services - Sewer service is provided by the City of Barstow. The existing system is expected to be adequate to serve all development projected for 1985 to 1990.

Public Services - Future growth will require additional staff and personnel if the existing level of service for law enforcement, fire protection, and other essential services are to be met. The nature and characteristics of future population growth will, to a large extent, determine which services will require additional funding to meet the City's future needs. The anticipated expansion of the military installations will have a direct impact on the number of new military personnel and civilian workers coming into the Barstow area. Many of these new residents will bring families which will impact schools and recreational facilities.

At present, the City has an Insurance Services Office rating of Class 5 which is based on a scale of 1 to 10 with ten being the lowest possible rating. Response times generally fall within the recommended ISO standards of five minutes due to the placement of existing fire stations. The police department had the highest clearance of felonies of the ten largest cities in San Bernardino County and ranked fourth lowest in criminal activity.





## 5.2. Environmental Constraints

Although there are environmentally sensitive areas within the City, they do not represent serious constraints to development due to the abundance of vacant land in non-sensitive areas of the City.

Topography - Land on the northern edge of the City is characterized by steep slopes and rugged land forms that in many places do not allow residential development. Zoning in these areas reflects these land forms.

Flood and Seismic Hazards - Flood prone areas in the City are located along the Mojave river. Very little existing housing or residentially designated land is affected by these flood areas. Earthquake fault lines are also in evidence in places in the City but given the low density, predominantly single-family development pattern, they do not pose a significant constraint on development.

Archaeology - Most archaeologically significant resources in the Barstow area - marine fossils, Indian artifacts and petroglyphs - exist outside of the city. Undeveloped land throughout the City, particularly in the western portions, however, may hold unrecorded archaeologically significant artifacts or fossils. Discovery of such artifacts on a residential construction site could increase the cost and hamper development in the area.

Environmentally Sensitive Resources - The only known environmentally sensitive plant or animal potentially affected by development in Barstow is the State-protected Desert Tortoise. Forage routes or habitats for these animals can potentially be destroyed by development within the City; however, the animal can be relocated to adjacent vacant areas.

Noise - Residential land uses are considered the most sensitive to loud noise. Major noise generators in the City are the AT & SF Rail Road, the I-15 Freeway, and the occasional sonic booms from jets associated with nearby military installations. Residential development near these major noise generators (excluding sonic booms) requires special considerations concerning noise insulation which could add to the cost of development.



## 6.0 Summary

The City of Barstow Community Policy Plan was developed in 1986 to identify major issues facing the City at this time. The major issue areas identified in the Policy Plan are identified below under Land Use Issues.

### 6.1 Land Use Issues

1. How may the City serve to improve the downtown area as a viable and attractive commercial core?
2. What actions may be taken to coordinate the land use policies of various public agencies operating within the City's Sphere of Influence?
3. How can the quality of local residential neighborhoods be upgraded?
4. What types of uses should be prohibited or permitted only under special conditions?
5. What can be done to restrict the continuation of existing strip commercial areas as well as to prohibit the establishment of new strip commercial areas?
6. Should the City encourage new industrial development? If so, where and what kinds should be encouraged?
7. What steps can be taken to upgrade building and planning enforcement in adjacent unincorporated County areas?
8. What should be the future role of tourism in the City of Barstow? (From the community's standpoint, should it be encouraged? If so, in what manner?)
9. What areas in Barstow should receive priority in terms of "clean-up" and/or maintenance enforcement? (Identify and, if possible, outline problems of each area.)
10. How can Barstow upgrade its existing commercial and industrial areas?
11. What procedures should be developed to phase out non-conforming uses in the community?
12. Are there any specific areas in Barstow that should be subject to redevelopment?
13. What areas in the greater Barstow area, because of historical importance, should be permanently preserved?



# NATURAL RESOURCES ELEMENT





### III. NATURAL RESOURCES ELEMENT

#### A. Introduction

##### 1. State Requirements

State planning law requires every general plan to have a conservation element (Section 65302(d)). The conservation element serves to protect and maintain the State's natural resources and to prevent their wasteful exploitation, degradation and destruction.

The Natural Resources Element includes the components which are required in both the conservation and portions of the open space elements. The specific issue areas include geologic resources, air quality, water resources, park and recreation facilities, and biological resources.

Barstow contains many natural resources vital to the physical and social health of the community. This Element is concerned with protecting the City's environmental resources.

The format is designed to facilitate periodic updating that may be required following adoption of the General Plan. The Technical Report contains base data that describe existing conditions that may be subject to change over time. Additional information can be incorporated into the Technical Report or Master Environmental Assessment (MEA) without altering the Natural Resources Element.





## B. Issues Identification

Barstow derives much of its character and quality of living from its desert setting. While the Mojave Desert can experience harsh conditions, it is also extremely susceptible to man's activities. Careful management and preservation of the natural environment are keys to maintaining the Barstow desert lifestyle. Important issues which must be considered include:

- Careful consideration of the interface between private lands and public lands administered by the Bureau of Land Management.
- Careful consideration and monitoring of the management and use of federally owned lands to provide a balanced use between commercial, private, recreation and conservation desires.
- Federal and State legislation affecting use of and access to desert.
- Conservation of natural resources, especially water.
- The effects of high winds and the resultant blowing sand and dust.
- Impacts related to temperature extremes.
- The effect on Barstow of air pollutants generated in the South Coast Air Basin.
- Depletion of groundwater.
- The use of mineral deposits found in the surrounding mountains.
- Impacts on rare and endangered plants and animals, including: the Mohave Woolly Sunflower (*Eriophyllum mohavense*), Sand Linanthus (*Linanthus arenicola*), desert tortoise (*Gopherus agassizii*), and the Mohave Ground Squirrel (*Citellus mohavensis*).



## C. Objectives and Policies

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**Objective 1.0 - Provide for the protection and utilization of various land resources.**

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- Policy 1.1. - Protect and conserve agricultural land from unnecessary or unrestricted grading, natural erosion and flooding.
- Policy 1.2 - Protect various agricultural land and uses from premature development. While it may not be possible to require the retention of agriculture as a permanent use, such use should be encouraged and existing agricultural areas maintained and utilized to control the phasing of development.
- Policy 1.3 - Protect remaining natural watershed, drainage beds, and water recharge areas to assure maximum recovery of natural groundwater supplies and the preservation of natural plant and animal life.
- Policy 1.4 - Future plans for drainage or flood control facilities shall consider alternative methods to the typical concrete channel and underground pipe improvements. Such facilities should allow for natural water percolation and recharge plus the continued protection and maintenance of natural biota in and near the riverbed.
- Policy 1.5 - Protect and permit the controlled extraction of available natural minerals or geologic resources, in consonance with the planned development of the City.
- Policy 1.6 - Strive to guarantee the proper controls with any resource extraction process throughout the life of the operation. These would encompass excessive air, noise, water, and visual pollution and otherwise potential nuisance characteristics attendant to such operations. As various resources are depleted during the operating life cycle of the use, complete rehabilitation of these areas shall be required as a condition of approval and further operations.
- Policy 1.7 - Support requirements for performance bonds as an additional means of rehabilitating any sites, including the removal of any extractive equipment or facilities used in the particular operation.
- Policy 1.8 - Encourage the Bureau of Land Management to restrict or remove any extractive operations which significantly alter the quality of air or water resources.



Implementation

- Measure 1.1 - Coordinate local plans and development schedules so as to eliminate possible conflicts between any existing or planned extraction operations and future residential development within the City or its sphere of influence.

Implementation

- Measure 1.2 - Establish a schedule for existing or planned extraction operations during which time adjacent future residential uses would be either withheld, or required to incorporate special site improvement to minimize any possible conflicts.

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**Objective 2.0 - Establish a program to protect and extend the quality and quantity of existing water resources for future use by the community.**

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Policy 2.1 - Cooperate with the Mojave Water Agency in monitoring water use in all basins of the Mojave River.

Policy 2.2 - Protect the water supply and quality through litigation, if necessary, from abusive use.

Policy 2.3 - Promote the development of a plan for purchase and delivery of aqueduct water into the Mojave River system.

Policy 2.4 - Support other agencies in eliminating all sources of pollution which contaminate the quality of water resources in the basin. Projects and activities should be investigated to eliminate or minimize the effects of any contaminating sources(s).

Policy 2.5 - Support improvements in sewage treatment and the concept of reuse and recycling of waste waters. The local sewage treatment plant may be expanded, if necessary, to include recycling equipment. Other alternative use of treated waste waters should be explored.

Implementation

- Measure 2.1 - The City shall support the development and maintenance of a total water management program for the entire Mojave River Basin which maximizes and protects the use of the natural groundwater basin to store and supply water of highest quality in meeting or exceeding State and Federal standards.

Implementation

- Measure 2.2 - Establish guidelines and educational programs for consumer items which typically have a detrimental effect on water quality or treatment in the local



area - examples of which include: detergents, regenerating water softeners, fertilizers, insecticides, pesticides, etc.

Implementation

Measure 2.3 - The City shall develop the necessary criteria and programs to ensure that all street drainage systems, sewage and waste systems, and other physical improvements with the City will be developed and maintained in such a manner as to minimize any adverse impacts on water quality. The possibility of diverting or treating street drainage should be investigated.

Implementation

Measure 2.4 - The City shall establish annexation policies which further promote or enhance existing and improved water quality and prevent the over-extension of necessary water and sewage treatment facilities. The City should utilize its ability to provide adequate and efficient water and sewer facilities as a primary consideration in determining its ultimate sphere of influence.

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**Objective 3.0 - Minimize the consumption of existing energy resources and encourage the reclamation and reuse of various resource products.**

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Policy 3.1 - The City shall support traffic patterns which conserve gasoline fuel consumption.

Policy 3.2 - City residents shall be encouraged to form car pools, particularly for long-distance trips.

Policy 3.3 - The City shall encourage the development of new energy sources as well as new technology which will conserve existing sources.

Policy 3.4 - The City shall establish programs and measures for dealing with solid waste management problems. Educational programs that inform residents of disposal problems with various types of packaging and container materials, and of the advantages of purchasing and segregating other materials for recycling, should be continued.





Natural Resources Element  
Technical Report





NATURAL RESOURCES ELEMENT  
TECHNICAL REPORT

August, 1987

Cotton/Beland/Associates, Inc.  
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Pasadena, California 91104

#424



## 1.0 Introduction

This technical report is concerned with the identification of various natural resources found in the Barstow planning area. The Natural Resources Element Technical Report is divided into four subsections: air, water, geological, and biological resources. Discussion within each sub-section describes Barstow in the context of that particular resource and the constraints and opportunities that need to be considered for long-range planning purposes.

The Mojave Desert represents a harsh and hostile environment to those unfamiliar or unaccustomed to desert living. This outward appearance is deceptive. In reality, the desert is a fragile ecosystem that is extremely sensitive to man's activities. Great care must be taken to insure that the natural resources formed in the desert are not overexploited and as a result, lost forever.

The value of the desert is not lost among the State and Federal agencies charged with its protection. Section 601 of the Federal Land Policy and Management Act of 1976 established the 25-million acre California Desert Conservation Area (CDCA) in which Barstow is centrally located. This Act requires the Secretary of the Interior to prepare and implement a long-range plan for the management, use and protection of 12.1 million acres of public lands administered by the Bureau of Land Management.

Conservation is also an important tool in improving the quality of air and water. In addition, conservation efforts are important in extending the life of the reserves of nonrenewable mineral resources. Conservation of natural energy resources is a priority, both nationally and locally. Measures which result in the conservation of energy can be divided into three major categories: (1) incorporation of energy conserving features in new construction, (2) installation of energy conserving features into existing structures, and (3) residents practicing energy conserving measures. Most of the features which can be incorporated into new construction can also be installed in existing units.

There are a variety of programs available to builders, and property owners dealing with energy conservation. Such programs are found at federal, state, and local levels, and include a wide range of strategies.



## 2.0 Air Resource

### 2.1 Climate

The City of Barstow is located in the High Desert portion of the southeast Desert Air Basin. This basin is considered one of the hottest and driest areas in California and includes the eastern portion of San Bernardino, Riverside, Kern, Los Angeles and San Diego County, and all of Imperial County. The air basin covers an area of 33,636 square miles and is separated from the coastal regions by mountain ranges. Elevations in the basin range from 235 feet below sea level at the Salton Sea to 11,485 feet at the summit of Mount San Gorgonio.

The basin is divided into two distinct sections: the High Desert (Mojave) and the Low Desert (Colorado). The northern portion of High Desert section includes the Mojave Desert which gradually merges into the Great Basin without a distinct transition.

The San Gabriel and San Bernardino mountains prevent the moist coastal air from reaching Barstow. As a result, precipitation is generally low. Precipitation averages approximately 4.5 inches per year with a range of approximately 1.1 inches to a high of 7.9 inches per year. Rainfall in the area is sporadic and localized. Sudden storm events can also result in large runoffs. January is typically the wettest month, ranging from 0.3 to 2.15 inches.

The high desert experiences moderate fluctuations in temperature both seasonally and daily. Barstow typically experiences hot summers and cold winters. Mean daily temperatures range from 31°F in December and January to 102°F in July and August. Low and high temperatures have been known to fluctuate as much as ten degrees from mean temperature.

Wind is a major factor to consider when describing air quality in the Barstow region. Prevailing breezes of 10 to 20 miles per hour generally originate from the northwest to the southwest approximately eighty-five percent of the time. Period of high winds can be experienced every month of the year.





## 2.2 Air Pollution

Air quality within Barstow is generally very good when compared to air quality in other parts of Southern California. The major factors in contributing to the good air quality include not only the physiographic and climatological factors described above but also the sparse nature of existing development. The number and nature of both mobile and stationary generators are not great enough to result in a significant degradation in air quality at the present time.

Barstow does not produce sufficient auto and industrial exhaust to significantly degrade its air quality below State and Federal standards. The South Coast Air Basin, west of Barstow, is a major generator of air pollutants, while the vast, relatively unpopulated desert areas, including Barstow, contribute relatively little to the total Southern California air pollution problem. A low-level temperature inversion often creates a ceiling over the basin, trapping the pollutants at a lower level. As the desert areas are heated, a low air pressure area is created, allowing cooler ocean air to move inland over the desert area, carrying some pollutants with it.

The Federal Clean Air Act requires that each state develop an implementation plan for achieving and maintaining the National Air Quality Standards. In California, the California Air Resources Board is responsible for developing and administering the plan through its regional agencies. In Barstow, this is being accomplished through the San Bernardino Air Pollution Control District.

In California, there are two sets of Ambient Air Quality Standards. The California Air Resources Board (CARB) has adopted standards for California and the United States Environmental Protection Agency (EPA) has promulgated nationwide standards. These standards in most cases are not the same, and in most instances the California Standard is most stringent. Both standards are set to protect public health.

The San Bernardino County Air Pollution Control District (SBCAPCD) has operated an air monitoring station at the County Building at 301 Mt. View in the community of Barstow for a number of years.

The SBCAPCD is currently monitoring for ozone, carbon monoxide, nitrogen dioxide, and total suspended particulates at the Barstow site. These parameters were chosen to monitor to provide an ambient air quality data base for the community. This data base is very useful for industrial siting, community planning and other similar projects.

The current air quality in the Barstow area is good, particularly in the fall, winter and spring months. In the summer months, May through September, there is an increase in ozone concentration, which at times exceeds State and National Ambient Air Quality Standards.



The State standard for ozone is 0.10 parts per million (PPM) averaged over an hour. Similarly the national standard is 0.12 parts per million (PPM) averaged over an hour. In addition to the standards it has been determined that an hourly average of ozone concentration between 0.13 ppm and 0.19 ppm is unhealthy for sensitive people. Ozone concentrations which exceed 0.20 ppm over an hour average are considered unhealthy for everyone (First Stage Alert Level).

State and national ambient Air Quality Standards by ozone were exceeded only a few times between October and April during the 1983-85 period. However, standards were exceeded several times during the same period between May and September. This coincides with the typical "smog season" of Southern California.

The number of days exceeding State Standards remained consistent over the three year period, as shown in NR-1. There were substantially fewer days exceeding National Ozone Standard for the three year period, see Table NRTR-1.

TABLE NRTR-1  
OZONE STANDARDS

State Standards		0.10 PPM
State	Total Hrs. Monitored	# Hours
1983	7,684	318
1984	7,579	28
1985	5,682 (1)	114 (1)
Federal Standards		0.12 PPM
1983	7,684	20
1984	7,579	0
1985	5,628	3 (1)

(1) There was no data for the months of October, November and December.



In the three-year period, there was a total of 23 hours with the ozone concentration at or above the 0.13 ppm level. The ozone concentrations above the State and National standards can be attributed mostly to the transport phenomenon from the South Coast Air Basin. This can be determined by analyzing the time of the day the peak concentrations occur. Because ozone is a product of the chemical reaction of nitrogen oxides, hydrocarbons and sunlight, concentrations of locally generated ozone would occur in the early afternoon and drop substantially in the evening and early morning time periods. The peak concentrations in Barstow, with very few exceptions, occur in the evening (5 pm - 8 am) time period.

The above data, along with studies done on the transport phenomenon, would indicate that these high concentrations can be attributed to transport rather than local generation of ozone.

Monitoring for particulate matter is done on an every-sixth-day schedule for a 24-hour period. The State and National standards have been set in such a manner that there are several levels of concentrations of particulate matter which are applicable. The National Standard has a primary, secondary, and annual standard for total suspended particulates (TSP). CARB has recently changed this standard from TSP to particulate matter under 10 microns (PM10).

The national primary standards for TSP, which are health based standards, are 260 micrograms per cubic meter (ug/m<sup>3</sup>) for the 24-hour period and 75 ug/m<sup>3</sup> for the annual geometric mean. The National secondary standards for TSP, which are welfare based standards, are 150 ug/m<sup>3</sup> for the 24-hour period and 60 ug/m<sup>3</sup> for the annual geometric mean. The State standards for PM10 are 50 ug/m<sup>3</sup> for the 24-hour period and 30 ug/m<sup>3</sup> for the annual geometric mean.

In 1983 for the Barstow area, the highest TSP value was 87 ug/m<sup>3</sup>; the second highest was 85 ug/m<sup>3</sup>, and the annual geometric mean was 64 ug/m<sup>3</sup>. There were no samples above 100 ug/m<sup>3</sup> (the old State TSP Standard). This is based upon a total of 20 samples.

These data are somewhat higher for 1984 and 1985, with the highest concentrations being 144 ug/m<sup>3</sup> and 128 ug/m<sup>3</sup>, respectively. In the two years there were four samples above 100 ug/m<sup>3</sup> and no samples above the 150 ug/m<sup>3</sup> level. The annual geometric mean (AGM) for the two years was 60 ug/m<sup>3</sup> and 63 ug/m<sup>3</sup>, respectively.

The District has limited data for the PM10 fraction of TSP for 1985. There were 14 samples taken in 1985, with a high of 89 ug/m<sup>3</sup> and an arithmetic mean of 40ug/m<sup>3</sup>. There were three samples which exceeded the 50 ug/m<sup>3</sup> State Standards.

In summary, the air quality in the Barstow area is quite good. There are two major influences that degrade air quality. The first and most important is the transport of ozone from the South Coast Air Basin during the summer months. The second influence is wind-blown dust which occasionally exceeds State and National particulate matter standards.





### 3.0 Water Resource

#### 3.1 Existing Groundwater

The Mojave River watershed, which extends from the San Bernardino/ San Gabriel Mountains to Soda Lake near Baker, produces approximately 100,000 acre-feet of water a year and is the principal water source in the Mojave Desert. As the Mojave River flows from the San Bernardino Mountains, where rainfall is approximately 40 inches annually, the volume of water flowing downstream toward Barstow gradually decreases due to diversion, percolation, and evaporation.

Additional water supplies in the Mojave River Basin are obtained from reclaimed wastewater from George Air Force Base, the Lake Arrowhead Sanitation District, and the Victorville Sanitation District. This water is used primarily for irrigation and recreation.

The Mojave River consists of relatively unconsolidated sand and gravel and is very porous, allowing the surface waters to percolate into the basin where it is stored in the alluvial soils above the basement rock, which is a non-permeable rock layer that traps the ground water. The peculiar configuration of the primary faults through the area contributes to underground storage capacities in specific areas. Each of the faults crossing the Mojave River in the Barstow area uplifted the bedrock basement complex on the downstream side of these faults, impeding the flow of groundwater and allowing it to build up on the upstream side. As a result, the depth of groundwater storage increases east of Barstow as it approaches the Waterman Fault. This increases the amount of groundwater that might be available otherwise.

Due to the progressively lower rainfall as the river winds its way into the desert, the amount of water which can be extracted without depleting the groundwater water supply also decreases. Barstow is located in the Lower Mojave Subunit, which has fluctuated considerably over past years. This fluctuation is primarily due to the variations in precipitation both locally and in the Mojave River watersheds in the San Bernardino Mountains.

The extraction of water from the groundwater basin to serve Barstow is done primarily from wells located in four well fields which provide the City with local groundwater.





## 4.0 Geological Resources

Soils play a critical role in determining land use policy. Physical properties and fertility inherent in different soil types dictate their development and agricultural potential. The Soil Conservation Service has developed soil map units which can be used to compare the suitability of large areas for general land uses. Typically a soil map unit consists of one or more major soils or miscellaneous areas and some minor soils and miscellaneous areas. The soil areas making up one unit can occur in other units but in a different pattern.

### 4.1 Soil Types

The nature of soils in the Barstow region is governed by the region's geology, climate, and the continuing process of weathering. The Mojave Desert Province, the geologically defined region in which Barstow is located, is characterized by dry lakes or playas, alluvial fans, and low mountains. There is little evidence of volcanic activity although the region contains numerous fault systems. The playa, consisting of deposits of saturated alluvium and impervious clay up to depths of 100 feet, are remnants of numerous ancient lakes that were located in the region during the Pleistocene. A general warming trend that began toward the end of the Pleistocene resulted in the gradual "drying up" of the lakes.

The Soil Conservation Service has identified three soil map units in the Barstow Planning Area: 1) the Villa-Riverwash-Victorville, 2) the Cajon-Manet, and 3) the Mirage-Joshua. Following are the SCS descriptions for these map units (A-6).

Villa-Riverwash-Victorville. This map unit is on recent, narrow flood plains and on low terraces along the Mojave River. These soils are formed in alluvium derived predominantly from granitic material. These soils are typically very deep, nearly level, and moderately well drained and are located on flood plains and on some low river terraces. These soils typically are mainly loamy sand or loamy fine sand, and they have thin strata of sandy loam throughout.

Riverwash consists of sandy soil material in the bed of the Mojave River where there is little or no vegetation. Riverwash is subject to flooding during prolonged rains.

Victorville soils are found on low river terraces and, in some areas, on flood plains. These soils typically have a sandy loam surface layer. The substratum is sandy loam with thin strata of loamy sand, sandy, and clay loam.

Of minor extent in this unit are the well-drained Victorville Variant soils located in alluvial fans and in small basins; small areas that undergo periodic flooding which have a water table at a depth of less than 5 feet; and soils on alluvial fans that have been terraced, leveled, or scraped due to development.



Areas of this unit are used mainly for irrigated crops, homesite development, wildlife habitat, or grazing. The soils in this unit are suited to most of the crops commonly grown in the area. The soils are limited for many uses by a moderate to high hazard of soil blowing. Because of the hazard of flooding, this unit is poorly suited to homesite development.

If the soils in this unit are used for grazing, they are limited by low precipitation and rare periods of flooding. These limitations prevent the establishment of palatable forage. Generally, forage is limited to riparian shrubs and trees and spring annuals.

This unit provides openland habitat for wildlife such as hawks, owls, mourning doves, coyotes, desert cottontails, ground squirrels, and mice. Maintaining existing water-associated vegetation, such as cottonwoods and willows, is beneficial to wildlife. Where large areas of land are devoted to intensive agriculture, windbreaks enhance wildlife habitat.

**Cajon-Manet.** This map unit is found on narrow to broad or coalescing alluvial fans throughout the planning area. Cajon soils are formed in granitic alluvium while Manet soils are formed in alluvium derived dominantly from dark-colored micaceous minerals. These soils are typically very deep and are found in areas with a wide range of slopes.

Cajon soils are somewhat excessively drained with slopes ranging from 0 to 15 percent. Typically, the profile is sand and loamy sand throughout with strata of gravelly sand and in the lower part of the profile. In some areas the soils are gravelly sand throughout.

Manet soils are well drained with slope ranges from 0 to 9 percent. Typically, the profile of this soil type is sand and loamy sand and a strata of fine sandy loam.

Of minor extent in this unit are the excessively drained Arizo soils located on the upper parts of alluvial fans. These soils are very gravelly. Areas of this unit are used mainly for wildlife habitat, grazing, irrigated crops, or homesite development.

The major soils in the Cajon-Manet unit are suited to the irrigated crops commonly grown in the area. Limitations include low to moderate available water capacity, the hazard of soil blowing, a high water intake rate, and low fertility. If the Manet soils and the gravelly Cajon soils are used for homesite development, the main limitation is the hazard of flooding. If this unit is used for grazing, the main limitation is low precipitation. Generally, forage is limited to spring annuals. Indian ricegrass, a perennial grass, is commonly found in some areas. This unit provides habitat for coyotes, ground squirrels, owls, wrens, and reptiles. Existing vegetation such as creosotebush and white bursage can be maintained to provide wildlife habitat.



**Mirage-Joshua.** This map unit is located on old dissected terraces adjacent to rocky desert uplands. The soils are formed in alluvium and are characteristically deep, well-drained, and covered by a desert pavement.

Mirage soils are very deep with slopes ranging from 2 to 5 percent. Typically, the surface is covered by a desert pavement of varnished pebbles and cobbles. The surface layer consists of sandy loam, and the subsoil is sandy clay loam and gravelly sandy loam. The substratum consists of gravelly loamy sand.

Joshua soils are moderately deep with slopes ranging from 2 to 15 percent. Typically, the surface is covered by a desert pavement of varnished pebbles and cobbles. The surface layer consists of loam, and the subsoil is gravelly sandy clay loam and gravelly sandy loam. The substratum is very gravelly coarse sandy loam or very gravelly loamy coarse sand.

Areas of this unit are used mainly as wildlife habitat or for grazing. If this unit is used for grazing, the main limitations are low precipitation and the barren areas of desert pavement. This unit provides habitat for wildlife including coyotes, owls, and rodents and reptiles that burrow near the base of plants. Existing vegetation provides food and cover for these reptiles and rodents. Potential for improving wildlife habitat is poor to very poor.

#### **4.2 Mineral Resources**

The desert environment has been rich in mineral resources. Significant mineral deposits are located north of Barstow in the Waterman Hills, northeast in the Calico Mountains, and southeast in the Newberry Mountains. Many of these mineral deposits, except for the rockhound, are presently uneconomical to develop and extract. The only mineral resources actively exploited today are limestone and salt deposits, although there was extensive mining activity conducted between 1870 and 1900, and again in the 1930's. The region surrounding the planning area contains several notable mineral deposits.

**Borite** - This mineral is used as a weighting agent in oil and gas wells and in the manufacture of barium products. In addition, barium is used in paints, rubber, glass, and as a high-density aggregate in concrete used for shielding. Borite appears to be the most abundant mineral in the Calico Mountains, which include numerous mining operations.

**Borax, Boron Compounds** - Among the many uses of borax in industrial, consumer, and agricultural applications, the largest concerns the use of borax in glass, heat-resistant glass, and optical glass. The principal boron deposits in California are found in the Mojave Desert. The nearest boron deposits to the City of Barstow are found in the vicinity of the Calico Mountains.

**Copper** - Copper is one of the most versatile and widely used minerals due to its superior electrical conductivity and alloying characteristics. The major copper deposit in the vicinity of Barstow is referred to as the Ord Mountain District.





Feldspar - Feldspar is widely used in glass and ceramics as a material to strengthen the finished product. Feldspar is also used in the production of pottery, scouring soaps, abrasives, and enamels. A major feldspar deposit is located in a Miocene-aged deposit in the central part of the Mud Hills, approximately 10 miles north of Barstow.

Iron - Iron ore is the basic raw material for iron and steel. Iron is an abundant metal, comprising about five percent of the earth's crust. Only those ore deposits located near markets, production facilities or in very large deposits are considered to be minable.

California's iron deposits are concentrated in the Mojave Desert province in western San Bernardino and Riverside Counties where 99 percent of the State's production is derived. The lava bed district which includes the Barstow area contains the Ord Mountain and Cat deposits. "





## 5.0 Biological Resources

### 5.1 Plant Life

The Mojave Desert region supports a complex ecosystem that is extremely valuable due to its relatively shallow mantle of soil and marginal rainfall. The desert region supports more than 700 species of flowering plants, 217 of which are found nowhere else in the world.

There are two basic plant communities in the Barstow region, the Creosote Scrub Community and the Alkali Sink Community. Some common species that may be found in these communities include: California Joint Pine (Ephedra californica), California Buckwheat (Erigonum fasciculatum), Triple-Awned Grass (Aristida sp.), and the Mohave Yucca (Yucca schidigera).

The Mohave Woolly Sunflower (Eriophyllum mohavense), is listed on the California Inventory of Rare and Endangered Plants and has been located in the general area. In 1983, the Bureau of Land Management set aside Areas of Critical Environmental Concerns to protect this species. Another species, the Sand Linanthus (Linanthus arenicola) has been found near Barstow and is listed as a plant that is rare or endangered in California, but more common elsewhere. No species included in Federal listing for rare or endangered plants exist in the immediate area.

### 5.2 Animal Life

The desert region supports a multitude of animal life including a variety of species of reptiles, birds, and mammals. Reptiles found in the area include over thirty species of snakes and lizards along with the desert tortoise (Gopherus agassizae) which is not on the State or Federal list of threatened and endangered species but which is considered a sensitive species by the State.

Birds are commonly found in this portion of the Mojave Desert. Species found in the desert include several species of hawks, owls, warblers, hummingbirds, sparrows, wrens, and flycatchers along with the roadrunner and raven. The Golden Eagle, a rare species in this area, has been spotted in and around Barstow.

Most of the desert mammals inhabiting the area are nocturnal. These species include bats, rabbits, mice, and squirrels, as well as fox, bobcat and coyote. One mammal species, the Mohave Ground Squirrel (Citellus mohavensis) is considered a threatened species by the State Department of Fish and Game.

The desert environment has become a popular recreation area and use is continuously increasing. As this activity continues, the fragile soil, vegetation and wildlife become adversely affected. In addition, man-made disturbances may affect the fragile desert environment for hundreds or even thousands of years.



## 6.0 Summary

The City of Barstow Community Policy Plan was prepared in 1986 for the express purpose of identifying major issues facing the City at this time. After issues were identified, specific policies were formulated to address those concerns identified in the Community Policy Plan. These issues relating to natural resources are identified below.

### 6.1 Natural Resource Issues

1. How may the City provide for the protection and utilization of various land resources?
2. How may the quality of air in Barstow be protected?
3. How may the quality of existing water resources be protected and extended for future use by the community?
4. How will the City provide sewer facilities as well as work toward assuring an adequate water supply for future needs?



## 7.0 References

### A. Literature

- A-1 Bulletin No. 106.1, California Department of Water Resources, June, 1964
- A-2 California Geology, November, 1971.
- A-3 "Sand Blow Study," Barstow, October, 1973.
- A-4 Flood Insurance Study, City of Barstow, California, Federal Emergency Management Agency, August, 1979.
- A-5 "Seismic and Safety Elements", City of Barstow General Plan, January, 1976.
- A-6 Soil Survey of San Bernardino County, California, Mojave River Area, USDA, 1978.

### B. Persons/Organizations

- B-1 Mr. Ziegler, Director of Public Services, City of Barstow
- B-2 Chief David Mathews, Barstow Fire Department



## HAZARDS ELEMENT







#### IV. HAZARDS ELEMENT

##### A. Introduction

##### 1. State Requirements

The Hazards Element of the Barstow General Plan is a combination of two of the required General Plan elements: the Safety Element and the Noise Element.

This element is concerned with natural and man-made hazards which may affect the City. This element specifically examines the potential risk from these hazards to those who live and work in Barstow. The Hazards Element is also concerned with identifying ways of reducing the risks, property damage, injuries, or loss of life in the event of a natural or man-made disaster.

The State of California General Plan Law and Guidelines was recently amended and some of those changes concern specific issues related to hazards. Prior to these changes made in 1985, State law required every general plan to have a Safety Element and a Seismic Safety Element or the required components of the two incorporated into an existing or optional element. The recent changes have eliminated the requirement for a separate Seismic Safety Element, though the contents previously required must now be incorporated into an expanded Safety Element.

State law requires that every safety element include the following components:

- ° The identification, mapping, and appraisal of seismic hazards which should be of concern including areas subject to liquefaction, ground-shaking, surface rupture, or seismic sea waves (Section 65302(f));
- ° An appraisal of mudslides, landslides, and slope instability which might occur as a result of a seismic disturbance (Section 65302(f)); and
- ° The identification of the potential for fires and other natural and man-made disasters and measures designed to reduce the loss of life, injury, and damage to property (Section 65302(i)).

The Hazards Element meets the requirements of State law as it relates to the safety element.

The section of the Hazards Element on noise follows the recently revised State Guidelines in the State Government Code Section 65302.1(f) and Section 46050.1 of the Health and Safety Code.

Government Code, Section 65302.1(f) states that a noise element should be prepared according to guidelines established by the Office of Noise Control in the State Department of Health Services. The Government Code further requires that the noise element contain an analysis and quantification, "to the extent practicable", of existing and projected noise levels for the following:

- (1) Highways and freeways;
- (2) Primary arterials and major local streets;



- (3) Passenger and freight on-line railroad operations and ground rapid transit systems;
- (4) Commercial, general aviation, heliport, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation;
- (5) Local industrial plants, including, but not limited to railroad classification yards; and
- (6) Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

In addition, the Government Code, as amended January 1, 1985, provides some specific direction in the preparation of noise elements. Section 65302.1(f) states:

"Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive.

The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the State's noise insulation standards."

The Barstow General Plan Hazards Element quantifies the community noise environment in terms of noise exposure contours for both near and long-term levels of growth and traffic activity. The information will become a guideline for the development of land use policies to achieve compatible land uses and provide baseline levels and noise source identification for local noise ordinance enforcement.

The technical analysis conducted in conjunction with the preparation of the Hazards Element is included in the Technical Report.

This Hazards Element includes the components which are required in the noise and safety elements. The Hazards Element considers four major issue areas to be addressed by the General Plan and the goals and policies contained in this element. The issue areas include environmental hazards, man-made hazards, noise and emergency services.



## **B. Issues and Opportunities**

### **1. Environmental Hazards:**

Seismic: The Barstow planning area is located in a region that is seismically active. There are several faults which traverse the planning area although they are considered to be inactive at the present time. The Mojave River Channel has a high potential for soil liquefaction in the event of an earthquake, because the water table is fairly shallow in this area. In addition, the alluvial areas, particularly those close to the Mojave River basin, could be expected to subside or settle somewhat as more groundwater is withdrawn or if earthquake ground movement occurs. Seicheing (oscillation of captured water such as in ponds) could occur in the sewage ponding areas along the Mojave River. With severe ground shaking, the sewage ponding areas could overflow the banks and cause downstream pollution.

Flooding: The City of Barstow contains flood plain areas as identified by the Federal Emergency Management Agency (FEMA). The FEMA map shows that several areas of the City are subject to 100 year floods: the Mojave River Channel, the Lenwood area, and the southeastern section of South Barstow.

Erosion: Erosion is caused by the action of water and wind wearing away the land surface. Because of the Barstow area's sparse native vegetation, sporadic and intense rainstorms, loose alluvial soil and prevailing breezes, erosion is an important issue.

### **2. Man-made Hazards:**

Such hazards in Barstow include fires, industrial hazards and traffic accidents, as well as other hazards that are typical of an urban environment. Other types of hazards not found in many urban areas include those related to the operation of a major truck terminal and hazards associated with rail traffic.

The natural and man-made hazards described above which may impact the City of Barstow are identified in Table H-1: Environmental Risk Assessment Framework. This table identifies the level of risk for each hazard and the probable geographical extent of that particular event or episode.

Each potential hazard to the public safety and welfare has been assessed according to the following levels of risk:

1. Low Risk - The level of risk below which no specific action is deemed necessary. The occurrence of a specific event is unlikely.
2. Medium Risk - The level of risk above which specific action is required to protect life and property, although the probability of the event taking place is low to moderate.
3. High Risk - Risk levels are significant and occurrence of a particular emergency is highly probable or inevitable.





The "scope of risk" refers to the geographic area that could be affected with the occurrence of one of the hazards. The scope of risk also includes three levels:

1. Local: The affected geographic area that is directly affected would be localized or site specific;
2. Citywide: The affected area would include a significant portion or all of the City; and
3. Regional: The affected area would include the entire City of Barstow and the surrounding region.

Policies identified in the General Plan identify the appropriate action necessary to protect life and property from those hazards with medium or high levels of potential risk.

In addition to the above, the State Office of Emergency Services (OES) has established three levels of emergency response to peacetime emergencies, which are based on the severity of the situation and the availability of local resources in responding to that emergency. The three levels of emergency response include the following:

- Level 1: A minor to moderate incident wherein local resources are adequate in dealing with the current emergency.
- Level 2: A moderate to severe emergency where local resources are not adequate in dealing with the emergency and mutual assistance would be required on a regional or statewide basis.
- Level 3: A major disaster where local resources are overwhelmed by the magnitude of the disaster and State and Federal assistance are required.

Those hazards of greatest concern to the residents of the City of Barstow are evident from the examination of the "scope of risk" column in Table H-1. General Plan goals and policies cannot prevent the occurrence of an earthquake though they can reduce the negative impacts associated with such an event. In terms of other potential hazards, general plan goals and policies can reduce the probability of their occurrence.

The Council on Intergovernmental Relations (CIR) Guidelines separates risk into three categories:

Acceptable Risk: The "level of risk" below which no specific action on the part of the government is deemed necessary or appropriate;

Unacceptable Risk: The "level of risk" above which specific action by the government is deemed necessary to protect lives and property; and

Avoidable Risk: Risk is not necessary because individual or public goals may be achieved at the same or less than the total cost by other means.





Policies developed within this context identify the necessary response on the part of the government to protect life and property from those hazards with unacceptable levels of risk. Specific proposals have not been indicated for those risks identified as "acceptable" and "avoidable" though these hazards are considered in long-range public safety planning.

### **3. Noise:**

The sources of noise in Barstow are for the most part transportation-related, with truck traffic on Interstate 15 being a primary source of intrusive noise in the City. The railroad tracks and classification yards are also a source of intrusive noise, although most of the land exposed to noise from this source is undeveloped.

### **4. Emergency Services:**

According to ISO and National Fire Protection Association standards, there should be one fire fighter on duty for every 1,000 residents.

Law enforcement services are provided by the Barstow Police Department and the California Highway Patrol.

Medical service is provided by the Barstow Community Hospital.



TABLE H-1

## ENVIRONMENTAL RISK ASSESSMENT FRAMEWORK

ENVIRONMENTAL HAZARD	POTENTIAL OF OCCURRENCE			SCOPE OF RISK			EMERGENCY RESPONSE		
	Low	Medium	High	Local	City	Regional	Level I	Level II	Level III
Earthquake									
Surface rupture	X			X				X	
Liquefaction			X	X				X	
Ground-shaking			X		X	X		X	
Slope failure		X		X				X	
Tsunami	X								
Dam failure	X								
Seiching			X	X				X	
Landslide	X			X				X	
Flooding									
Local ponding		X		X			X		
50 year flood	X			X				X	
100 year flood			X	X				X	
Fire									
Industrial			X	X			X	X	
Chemical			X	X			X	X	
Gas main		X		X			X	X	
Subsurface	X			X			X	X	
High-rise	X			X			X	X	
Wildland		X			X		X	X	
Chemical Contamination									
Road/Rail spill			X	X	X		X	X	
Airborne		X		X	X			X	
Subsurface		X			X			X	
Radiological	X				X	X		X	X
Erosion			X		X			X	
Major Accident									
Industrial	X			X			X	X	
Major road		X		X				X	
Aircraft		X		X				X	
Railway			X		X			X	



## C. PROPOSALS

### 1. Hazards Management

The implementation of the goals and policies of the City of Barstow General Plan will not result in any additional or significant hazards beyond those facing the City at the present time. The Environmental Risk Assessment (Table H-1) identifies the hazards which may impact the City and its residents. The risk assessment identifies the probability of a specific event occurring, the scope of risk identifies the geographic scale of the affected area, and the emergency response refers to the level of response required to provide adequate emergency services. The potential hazards, both man-made and natural, which may affect those who live and work in Barstow are identified in Section 1.2 (Issues and Opportunities) of this Element.

### 2. Noise Standards

Noise levels may be described using a number of methods designed to evaluate the "loudness" of a particular noise. The most commonly used units for measuring the level of sound is the decibel (dB), Equivalent Noise Level (Leq), and the Community Noise Equivalent Level (CNEL). The predominant sound level criteria in use in California at the present time utilizes the Equivalent Noise Level (Leq) and the Community Noise Equivalent Level (CNEL).

Decibel is the standard unit of measurement for the loudness of sound, involving a highly complex logarithmic scale of measurement. The decibel unit represents the logarithmic ratio of the average pressure of a measured sound to the weakest audible pressure a young ear can detect under ideal conditions. Every increase of 10 decibels represents a corresponding tenfold increase. For example, an increase in noise from 60 dB to 80 dB represents a hundredfold increase in sound energy between the two levels.

The Leq is the average of the sound level energy for a one-hour period and employs an A-weighted decibel correction which corresponds to the optimal frequency response of the human ear. The CNEL is based upon 24 one hour Leq measurements. The average noise levels for the late evening and early morning hours (the period between 10:00 PM and 7:00 AM are weighted 10 decibels. A decibel is a unit used for measuring the intensity of sound. Zero on the decibel scale represents the lowest limit of sound which can be heard by humans. The measurement of the intensity of sound continues from zero up to those noise levels that can cause physiological damage to the inner ear (the ear drum may rupture at 140 dB).

Noise is known to have several adverse effects on people which has resulted in the establishment of criteria designed to protect persons from unwanted and potentially harmful effects of noise. The potential noise impacts on people include hearing loss, speech interference, sleep interference, physiological responses, and annoyance. The goals and policies of the Noise Element are designed to reduce the potential for noise related impacts on a variety of noise sensitive land uses.



Guidelines relative to land use and noise have been developed by a number of Federal and State agencies including the Environmental Protection Agency, Federal Highway Administration, Department of Housing and Urban Development, American National Standards Institute, and the State of California. All of the guidelines established by the above agencies are based upon cumulative noise criteria such as LEQ, LDN, or CNEL. For purposes of establishing standards for noise exposure, the Noise Element will use the standards recommended by the Office of Noise Control, California Department of Health. The State of California noise/land use compatibility guidelines are provided in Figure H-1.

Figure H-1 categorizes the compatibility of specific noise levels with a range of land uses common to many cities. Exposure is indicated on a scale of 50 CNEL to 85 CNEL. For example, the normally acceptable level in single-family residential development generally ranges from 50 CNEL to 60 CNEL. It is important to note that State law now requires special noise insulation of new multiple-family dwellings constructed within an area identified as exceeding 60 CNEL.

The Noise Element established standards concerning land use noise compatibility and interior and exterior noise standards. Table H-2 establishes standards for the maximum allowable interior and exterior noise levels for a range of uses common to Barstow.





Land Use Category	Community Noise Exposure Ldn or CNEL, dB					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes						
Residential - Multiple Family						
Transient Lodging - Motels, Hotels						
Schools, Libraries, Churches Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheatres						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables Water Recreation, Cemeteries						
Office Buildings, Business Commercial and Residential						
Industrial, Manufacturing Utilities Agriculture						

#### Interpretation

##### Normally Acceptable

Specified Land Use is Satisfactory, Based Upon the Assumption that Any Buildings Involved are of Normal Conventional Construction, Without Any Special Noise Insulation Requirements.

##### Conditionally Acceptable

New Construction or Development Should be Undertaken Only After a Detailed Analysis of the Noise Reduction Requirement is Made and Needed Noise Insulation Features Included in the Design. Conventional Construction, but with Closed Windows and Fresh Air Supply Systems or Air Conditioning, Will Normally Suffice.

##### Normally Unacceptable

New Construction or Development Should Generally be Discouraged. If New Construction or Development Does Proceed, a Detailed Analysis of the Noise Reduction Requirements Must be Made and Needed Noise Insulation Features Included in the Design.

##### Clearly Unacceptable

New Construction or Development Should Generally not be Undertaken.



TABLE H-2  
INTERIOR AND EXTERIOR NOISE STANDARDS

CATEGORIES	USES	LAND USE CATEGORIES		ENERGY AVERAGE CNEL	
				INTERIOR(1)	EXTERIOR(2)
Residential	Single Family, Duplex, Multiple Family			---	65 (3)
	Mobile Home			---	65 (4)
Commercial Industrial	Hotel, Motel, Transient Lodging			45	65 (5)
	Commercial Retail, Bank Restaurant			55	---
	Office Building, Research and Development, Professional Offices, City Office Building			50	---
	Amphitheatre, Concert Hall Auditorium, Meeting Hall			45	---
	Gymnasium (Multipurpose)			50	---
	Sports Club			55	---
	Manufacturing, Warehousing, Wholesale, Utilities			65	---
	Movie Theatres			45	---
Institutional	Hospital, Schools classroom			45	65
	Church, Library			45	---
Open Space	Parks			---	65

(1) Indoor environment excluding: Bathrooms, toilets, closets, corridors.

(2) Outdoor environment limited to:

Private yard of single family

Multi-family private patio or balcony which is served by a means of exit from inside.

Mobile home park

Hospital patio

Park's picnic area

School's playground

Hotel and motel recreation area

(3) Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.

(4) Exterior noise level should be such that interior noise level will not exceed 45 CNEL.

(5) Except those areas affected by aircraft noise.

Source: Guidelines for the Preparation and Content of Noise Elements of the General Plan, California Department of Health, Office of Noise Control, February 1976.



## **D. Summary of Goals and Policies**

### **1. Environmental and Man-Made Hazards**

The Hazards Element emphasizes the importance of emergency preparedness in the reduction of the loss of life, injury, and property damage to the City. The policies contained in this element include requirements that the City maintain an up-to-date regional emergency response system, procedures for educating the public about the importance of emergency preparedness, and proposals to ensure that emergency equipment and supplies are maintained to adequately meet the needs in a emergency situation.

This element emphasizes the importance of maintaining a comprehensive emergency preparedness plan which will aid decision making in the event of a major emergency or crisis. The plan will be a guide to the various public officials, public agencies, private organizations, and citizens during a time of crisis and the information contained in the document will include the identification of emergency shelters, emergency supply distribution centers, emergency evacuation routes, and other resources that would be necessary in emergency and rescue operations.

Figure H-2 identifies the designated evacuation routes in the event of an emergency that requires residents to evacuate portions or all of the City. The map also identifies those facilities that would serve as shelters and aid stations in the event of an emergency.

Barstow residents, due to their proximity to a major truck terminal and railroad yard, are at risk from accidents related to the use and transport of hazardous chemicals and materials. Policies included in the Hazards Element require that all producers, users, and transporters of hazardous materials be identified and that specific routes and the vehicles used in the transport of such chemicals be identified. Any activity or land use employing hazardous substances shall not be allowed in floodway areas adjacent to the Mojave River, such as the Crooks-Pierce area.





## 2. Noise

Noise concerns should be incorporated into land use planning to reduce future noise and land use incompatibilities. This is achieved by establishing standards and criteria that specify acceptable limits of noise for various land uses throughout the City. These criteria are designed to integrate noise considerations into land use planning to prevent noise/land use conflicts. Table N-1 presents criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis for the development of specific Noise Standards identified in the goals and policies.

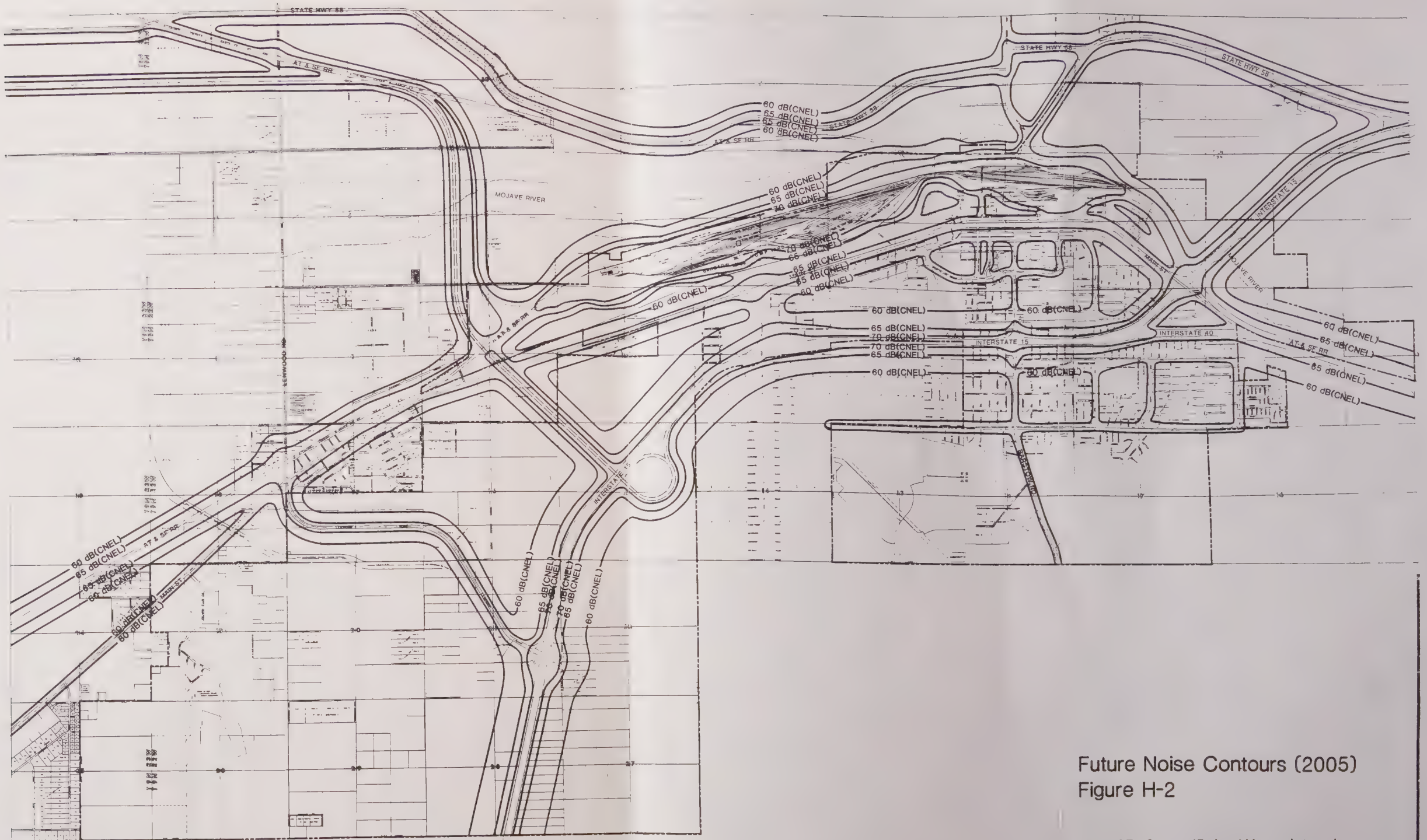
The noise contour map, Figure H-2, identifies the noise levels that are expected to result from the future traffic volumes identified in the Circulation Element. The map indicates those areas that will be exposed to noise levels exceeding 60 dB. Specific policies in the Noise Element call for compliance with State law requiring multiple-family residential development exposed to noise levels that exceed 60 CNEL. In addition, the Noise Element calls for periodic evaluation of the Noise Element Contour map to insure it accurately reflects the noise environment. The noise contours identified in Figure N-2 depict traffic-related noise based on computer models rather than actual noise measurements. These noise contours are generalized in nature and are not intended to preclude noise analysis that may be required for a specific project.

The implementation of the goals and policies of the Noise Element will result in the reduction of noise levels from both transportation related sources and stationary sources.

Mitigation through the design and construction of a noise barrier (wall, berm, or combination wall/berm) is the most common way of alleviating traffic noise impacts and is considered an appropriate mitigation measure to reduce potential impacts from land uses generating noise. The effect of a noise barrier is critically dependent on the geometry between the noise source and the receiver. A noise barrier effect occurs when the "line of sight" between the source and receiver is penetrated by the barrier.







Future Noise Contours (2005)  
Figure H-2

SOURCE: Cotton/Beland/Associates, Inc.

↑ North  
0 4000  
scale in feet

Based on FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108)  
and Assessment of Noise Environments Around Railroad Operations  
(Wyle Laboratories Report WCR 73-5).





## E. Goals and Policies

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### GOAL 1: PROVIDE THE MOST COMPLETE AND BEST QUALITY MEDICAL SERVICES POSSIBLE TO THE GREATER BARSTOW AREA

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Policy 1A: A comprehensive plan for providing adequate medical facilities and services to the Greater Barstow area should be developed, and include:

- (1) A detailed inventory of existing facilities and services and an analysis of any present deficiencies;
- (2) The establishment of viable alternatives to increase the quality of existing facilities and services; and
- (3) Expansion of types of medical services such as substance abuse, psychiatric, and rehabilitation programs.

Policy 1B: The City should actively encourage the development of additional convalescent facilities in Barstow.

Policy 1C: The City should aggressively pursue the expansion/rehabilitation or replacement of the Barstow Community Hospital.

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### GOAL 2: PROVIDE FOR REGULATED DEVELOPMENT IN AREAS SUBJECT TO NATURAL OR MAN-MADE HAZARDS

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Policy 2A: The City should require detailed expert study and evaluation of all potentially hazardous areas prior to development.

Policy 2B: The City should limit the extent and intensity of development upon steep terrain, in unstable soil areas, areas subject to seismic hazards or to flooding.

Policy 2C: In particular, the City should restrict any emergency or critical use facilities (hospitals, schools, etc.) from such high-risk areas.

Policy 2D: The City should also limit the type, intensity and design of development in areas subject to excessive winds, sand blow, fire and noise. This has particular applicability to the Sphere of Influence.

Policy 2E: Various ordinances should be established to specify when or under what conditions such areas may be developed.



Policy 2F: Flood hazard areas should be identified. Areas so determined should be retrofitted or mitigated.

Policy 2G: The Mojave River Basin and other areas identified as high risk for a seismic event, should be considered for designation as permanent open space.

Implementation Measure 2A: The Building Department shall, in the course of its code enforcement and permit processing activities, identify and keep a list of all inhabited structures considered seismically unsafe, especially those of unreinforced masonry and adobe.

Implementation Measure 2B: During permit processing of new construction projects, the Planning Department will give special consideration to the construction, design and location of critical facilities and the construction and design of buildings in areas subject to intense ground motion and liquefaction.

Implementation Measure 2C: The Planning Department shall regularly contact State, Federal and local governmental agencies to obtain updates on recent research on flood inundation and seismic safety hazards.





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**GOAL 3: THE CITY WILL WORK TO AMELIORATE PROBLEMS RELATED TO WINDBLOWN SAND**

---

- Policy 3A: It is recommended that the City, in conjunction with the County Planning Department and Flood Control District, undertake the necessary steps to reduce damage caused by sand blow in the Mojave River area.
- Policy 3B: It is further recommended that within a designated wind hazard area, the City and the County adopt and enforce ordinances regulating such activities as off-road vehicle use, land use and earth movement, and encroachment on the natural habitat, within the Mojave River area.
- Policy 3C: Since some procedures for special use permits may be necessary within such a restricted zone, it is recommended that such non-conforming or special use permits be considered by the City or County only after full concurrence by the Mojave Desert Resource Conservation District.
- Policy 3D: The San Bernardino County Flood Control District shall evaluate their activities with respect to river maintenance and alignment in the Study Area from the standpoint of both sand blow and flood control. For example, if the river is allowed to meander more naturally, this would tend to reduce, considerably, the length of exposed channel in direct alignment with the predominate winds. It is felt that this would have a major effect on the total sand movement and greatly induce stability to the whole ground cover regime.

---

(1) "Sand Blow Study of the Barstow-Mojave River Area," Ad-Hoc Committee of the Mojave Desert Resource Conservation District. October, 1973.





Implementation Measure 3A: To coordinate the joint effort to reduce sand blow and flooding, the Planning and Public Works Departments of the City will communicate with the County of San Bernardino on a regular basis.

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#### **GOAL 4: PROVIDE A SUITABLE ENVIRONMENT FREE OF EXCESSIVE SOUNDS AND NOISE**

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Policy 4A: Establish appropriate standards and criteria for desirable sound levels in various land use categories, as shown in Table N-1.

Policy 4B: In accordance with State standards, any new multi-family construction located in areas with noise levels greater than 60 db shall use sound attenuation measures that reduce interior noise levels to 45 db.

Policy 4C: Implement mitigation techniques for all construction where noise levels exceed compatible use standards. Sound attenuation walls are required for all new residential construction adjacent to the freeway or arterial highways.

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#### **GOAL 5: ESTABLISH COMPATIBLE LAND USE ADJACENT TO MAJOR TRANSPORTATION ROUTES**

---

Policy 5A: Regularly update the noise contour map that will identify the major sources of noise in the City. The noise contour map for 1986 is shown in Figure HTR-28 of the Technical Report.

Implementation Measure 5A: In accordance with State standards, the City will assess new multi-family development to determine if there is a need for noise attenuation. The City could also apply this standard to single-family developments (although it is not required by State law).

Implementation Measure 5B: The Planning Department shall update or oversee an update of the noise contour map every five years.

Implementation Measure 5C: The City shall adopt the land use designations contained in this General Plan.

Implementation Measure 5D: The Planning Department shall maintain communication regarding noise control with the State Office of Noise Control, neighboring jurisdictions and other relevant agencies.



Hazards Element  
Technical Report



**BARSTOW**  
GENERAL PLAN



CITY OF BARSTOW GENERAL PLAN

Hazards Element Technical Report

August, 1987

Cotton/Beland/Associates, Inc.  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104

#424



## 1.0 Introduction

This technical report is concerned with the identification of naturally occurring or man-made hazards that affect the City of Barstow. Information concerning potential hazards and the "risk of upset" is essential for proper land use planning over the lifetime of this General Plan. This report will also identify the available resources to respond in emergency situations.

### 1.1 Evaluation of Environmental Risk

Hazards that may affect life and property may be divided into two major categories: man-made hazards and naturally-occurring hazards. The precise nature of either type of hazard within a given area is dependent upon a variety of environmental and cultural factors present.

Table H-1 identifies those natural and man-made disasters which may impact Barstow residents and are described in detail in subsequent sections of this Technical Report. Table H-1 also identifies the level of risk for each hazard and the geographical implications in the event of environmental upset. Each potential hazard to the public safety and welfare has been assessed according to the following levels of risk:

- ° Low Risk - The level of risk below which no specific action is deemed necessary. The occurrence of a specific event is unlikely.
- ° Medium Risk - The level of risk above which specific action is required to protect life and property, though the probability of the event taking place is low to moderate.
- ° High Risk - Risk levels are significant and occurrence of a particular emergency situation is highly probable or inevitable.

The "scope of risk" refers to the geographic area that could be potentially affected with the occurrence of one of the hazards. The scope of risk also includes three levels:

- ° Local - The affected geographic area that is directly affected is localized or site specific;
- ° Citywide - The affected area includes a significant portion or all of the City; and
- ° Regional - The affected area includes the entire City as well as the surrounding region.





The State Office of Emergency Services (OES) has established three levels of emergency response to peacetime emergencies, which are based on the severity of the situation and the availability of local resources in responding to that emergency. The three levels of emergency response include:

- ° Level 1: A minor to moderate incident wherein local resources are adequate in dealing with the current emergency.
- ° Level 2: A moderate to severe emergency where local resources are not adequate in dealing with the emergency and mutual assistance would be required on a regional or statewide basis.
- ° Level 3: A major disaster where local resources are overwhelmed by the magnitude of the disaster and State and Federal assistance are required.

Those hazards of greatest concern to Barstow residents are evident from the examination of the "level of risk" columns in Table H-1.

Finally, "event duration" refers to the length of occurrence for a particular event. The residual effects of a particular event are not considered in this matrix though they may be long term in nature. An earthquake, for example, may only last for several seconds, but aftershocks may continue for many days, months, or in some instances even years. Fault displacement may result in permanent alterations in topography. Finally, property damage may be so extensive that complete recovery may take years. The following three categories are used in the classification of event duration:

- ° Immediate - The occurrence of a particular event is instantaneous or measurable in terms of seconds or minutes.
- ° Short-Term - The duration of a particular event is generally measured in terms of hours or days.
- ° Long-Term - The duration of a particular event extends for a much longer period of time. Specific hazards that are considered continuous or on-going are included in this category.

This report describes the environmental hazards summarized in Table H-1 and explained in greater detail in subsequent sections. In addition, the resources that are available to respond in the event of an emergency situation are described in Section 5.0.



TABLE HTR-1  
ENVIRONMENTAL RISK ASSESSMENT FRAMEWORK

ENVIRONMENTAL HAZARD	POTENTIAL OF OCCURRENCE			SCOPE OF RISK			EMERGENCY ENERGY RESPONSE			EVENT DURATION		
	Low	Medium	High	Local	City	Regional	Level I	Level II	Level III	Immediate	Short Term	Long Term
Earthquake												
Surface rupture										X		
Liquefaction			X	X				X	X	X		
Ground-shaking			X		X	X		X	X	X		
Slope failure		X		X				X		X		
Landslide	X			X			X	X			X	
Flooding												
Local ponding		X		X			X				X	
50 year flood	X				X			X			X	
100 year flood	X				X			X			X	
Fire												
Industrial			X	X			X	X		X		
Chemical			X		X		X	X		X		
Gas main		X		X			X	X		X		
Subsurface	X			X			X	X		X		
Chemical Contamination												
Road spill			X	X			X	X		X		
Airborne			X		X			X		X		
Subsurface		X			X			X				X
Radiological			X		X	X		X	X			
Major Accident												
Industrial			X		X		X	X		X		
Major road			X		X		X			X		
Aircraft		X		X			X	X		X		
Railway			X		X		X	X			X	
Water Shortage			X		X	X		X	X			
Noise			X	X			X	X				X

Source: CBA, 1986.



## 2.0 Environmental Hazards

Barstow, like most cities in California, is located in a seismically active region. Technological advances in geophysics may enable scientists to accurately predict earthquakes in the not-to-distant future. Until that time, disaster planning efforts must emphasize the following:

1. Planning efforts designed to reduce both direct and indirect effects of earthquakes. These include the enforcement of building safety standards, land use controls in microzones that are subject to liquefaction, surface rupture, or intense ground shaking; and other preventive measures.
2. The development of an emergency preparedness/action plan must be given a high priority to direct rescue efforts immediately after an earthquake.
3. A comprehensive planning program must be formulated to direct reconstruction efforts that may continue for months or even years after a major earthquake.

The above disaster planning efforts should be included in a comprehensive emergency preparedness/action plan that considers both natural and man-made hazards that may affect the City of Barstow.

### 2.1 Regional Seismic Characteristics

Based upon studies conducted by The California Division of Mines and Geology (CDMG) of prominent earthquakes between 1969 and 1971, the Western United States has been divided into the four seismic risk zones indicated below. The Uniform Building Code also assigns a code indicated in the parentheses, which corresponds with those identified by the CDMG.

Zone 0: (1) No reasonable expectation of earthquake damage.

Zone 1: (2) Minor earthquake damage can be expected.

Zone 2: (3) Moderate earthquake damage can be expected.

Zone 3: (4) Major destructive earthquakes may occur. All of California has been assigned to Zones 2 and 3 while the Mojave Desert Province, including Barstow, has been assigned to Zone 3 (A-2).

The Mojave Desert Province, the geologically defined region in which Barstow is located, is characterized by dry lakes (or playas), alluvial fans, and low mountains. There is little evidence of volcanic activity, although the region contains numerous fault systems. The playas consist of deposits of saturated alluvium and impervious clay up to depths of 100 feet and are remnants of numerous ancient lakes that were located in the region during the Pleistocene. A general warming trend that began toward the end of the Pleistocene resulted in the gradual "drying up" of the lakes.





The San Andreas Fault Zone and the Garlock Fault generally divide the Mojave Desert Province area into separate geologic provinces. To the north of the Garlock Fault are the Sierra Nevada and Basin Ranges provinces and to the southwest of the San Andreas zone are the Transverse ranges and Gulf of California (Colorado Desert) provinces. The Mojave Desert Province is located between these provinces and includes structural features that bear little resemblance to the adjacent provinces.

Under the California Division of Mines and Geology program for zoning potentially active faults, the State Geologist has identified the San Andreas, Garlock, and Manix faults as special-studies zones, indicating that these are officially recognized as active faults. There are several other potentially active faults located in the general area.

The San Andreas Fault System, the largest and most active fault system in the state, has a history of violent activity. Seismologists have noted that a major event along this fault system is statistically predictable in the foreseeable future. This system is capable of producing an earthquake with a magnitude of 8.0 or greater. The San Andreas Fault Zone generally trends in a north-south direction and is located approximately 50 miles southwest of Barstow.

Several discontinuous faults, most of which parallel the San Andreas, lie within the Mojave Desert Province. The Manix Fault is located approximately 25 miles to the east and parallels the Garlock Fault to the north. It was the source of a 1947 quake of 6.2 magnitude that which ruptured the surface and caused a 3" horizontal displacement. The Lenwood, Barstow, and Waterman faults run parallel through the study area, all trending northwest and following old lines of weakness generally influenced by the tectonics of the San Andreas Fault. Recent movement along the Lenwood Fault has exposed highly contorted Miocene rocks and Pleistocene fan deposits. The Barstow Fault is very similar. During Pliocene times, the Waterman fault was a thrust fault, uplifting the Waterman Hills, but during Quaternary times, it began vertical movement and formed the palisade of Miocene rocks north of the Mojave River. The regional seismic characteristics for the Mojave Desert area are indicated in Figure H-1.

## 2.2 Local Seismic Setting

There are several faults which traverse the planning area, although they are considered to be inactive at the present time. The term "inactive" may be misleading in that faults not considered "active" could still be responsible for a damaging earthquake. The definition of an active fault refers to a fault that has experienced seismic activity within recent times.

The most recent faulting activity has been recorded along a previously unmapped fault about 40 miles southeast of Barstow, now labelled the Galway Lake Fault. On May 31, 1975, a quake occurred with a magnitude of 5.2, rupturing the surface and causing a lateral offset of about 12 millimeters. This and the Manix Fault are the only two faults in recent history to have caused surface ruptures in the Mojave Desert Province.







Figure H-1  
Regional Seismic Setting

SOURCE: California Division of Mines and Geology, 1975





The Harper Lake/Camp Rock Fault has been estimated to have a potential for an earthquake of magnitude 7.1, while the Lockhart/Lenwood Fault could have one of magnitude 7.0. Other faults surrounding the planning area could have earthquakes between 6.5 and 6.9 magnitudes. The San Andreas Fault, about 50 miles southeast, could have an earthquake of magnitude 8.0. Figure H-2 shows the local seismic characteristics within the planning area.

The primary effects of an earthquake include surface rupture, ground motion, liquefaction, and soils settlement. The occurrence of any one of the above is dependent upon numerous factors including earthquake intensity, distance from epicenter, soils type, and moisture content of the soil.

Surface Rupture - Surface rupture refers to an actual displacement in the local terrain caused by the ground movement along a fault. The degree of displacement is a function of the intensity of an earthquake and can result in either vertical or lateral surface movement which may range from a few millimeters to several feet. Only those portions of the planning area that are traversed by faults would be subject to surface rupture.

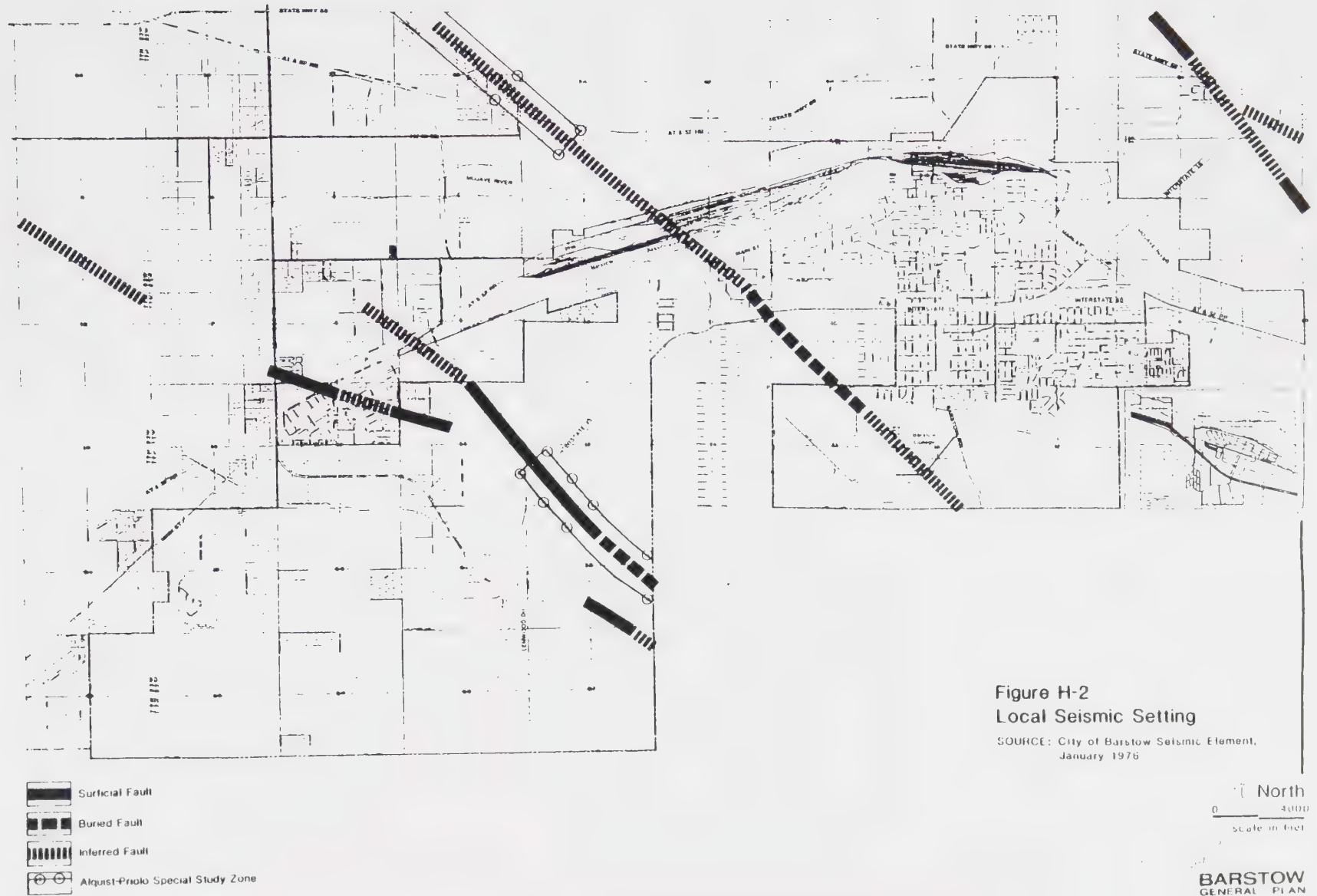
Ground Shaking - The energy released from an earthquake epicenter moves outward in "waves" in much the same way as waves in a pond are created from a pebble being thrown into it. The wave energy released during an earthquake will result in ground shaking with the intensity largely dependent on soil types, surface geology, and earthquake intensity. In the event of a major earthquake, the entire planning area could be subject to intense ground shaking.

Liquefaction - Liquefaction results when seismically induced ground shaking causes water-laden, cohesionless soils to form a quicksand-like soil condition below the ground surface. Structural damage may ensue as building foundations lose ground support. Liquefaction occurs in areas where groundwater exists near the ground surface and where poorly consolidated, cohesionless soils predominate.

Tests indicate that uniformly graded materials (those predominantly of one size, such as dune sand) are more susceptible to liquefaction than are well-graded materials and that, for uniformly graded soils, fine sands tend to liquefy more easily than do coarse sands, gravelly soils, silts, or clays. In addition, loose soil deposits will tend to liquefy more readily than denser deposits. Because the intensity and duration of ground shaking are somewhat proportional to earthquake magnitude, liquefaction is more likely to occur during moderate to strong earthquakes (6.3 and above). It is also generally recognized that the greater the distance to ground water, the lower the potential for soil liquefaction.



HTR-8







Along the Mojave River Channel, the depth to the water table in the planning area varies between 15 to 20 feet at the eastern edge of the planning area to 185 feet below the surface on the south bank at the western edge of the planning area. The water table is generally much closer to the surface along the north bank (A-3). Seasonal ground water fluctuations could cause variations in the depth of the water table up to 40 feet.

The entire Mojave River Basin should be generally considered as an area with high potential for liquefaction. It is emphasized, however, that liquefaction depends upon many factors; in addition to groundwater levels are factors such as soil type, relative density, and intensity and duration of ground shaking. Liquefaction potential for individual parcels within "high risk" areas needs to be evaluated on a case by case basis.

Subsidence, Differential Settling - As groundwater is withdrawn, areas of loose and soft soil materials could experience mass settlement from surface loading. Where there is a mixture of soil types with different compressibility, differential settling can occur. Most of the alluvial areas, particularly closer to the Mojave River Basin, could be expected to subside or settle somewhat as more groundwater is withdrawn or if earthquake shaking occurs. Shaking for any length of time could cause additional compression of the underlying soils, thus allowing the surface level to lower. This is not usually considered a serious problem if adequate soil tests are made prior to construction and adequate building designs are used.

Reservoirs, Dams, and Seiches - Seiches are oscillations of captured water such as in ponds and reservoirs, usually caused by earthquake shaking. In Barstow, this should present no severe problems except in the sewage ponding areas along the Mojave River. With severe shaking, the sewage ponding areas could overflow the banks and cause downstream pollution.





## 2.3 Flooding

Barstow is situated on alluvial deposits dissected by numerous small intermittent streams. The primary hydrologic feature within the planning area is the Mojave River which originates in the San Bernardino Mountains. The River flows in a northeasterly direction finally emptying into Soda Lake. The flow of the Mojave River is seasonal though it carries discharges from Lake Arrowhead, Silverwood Lake, and Mojave Forks Reservoir.

Local hydrology consists of small intermittent streams draining the hills located to the north and south of the City and emptying into the Mojave River. Water reaching the Mojave River is carried eastward out of the City limits. The highest elevation within the corporate limits is 2,720 feet, located near Barstow College. The lowest point of the City is 2,069 feet in the flowline of the Mojave River to the northeast. Elevations for most of the developed area of the City range from 2,100 to 2,400 feet.

The U.S. Department of Housing and Urban Development (HUD), through its National Flood Insurance Program, has identified and mapped those areas of the City that are at risk due to periodic flooding. The Flood Insurance Rating Map (FIRM) is designed for flood insurance and flood plain management applications. Flood zone designations indicated on the map refer to specific areas which may be subject to flooding, based on engineering and hydrologic studies. The map identifies 100-year and 500-year flood plains, floodways, location of selected cross-sections used in the hydrologic studies, and the anticipated flood-water depths. The following flood zone designations may be found on the flood insurance rate map produced for the City of Barstow:

Zone A: Areas subject to flooding in the event of a 100-year flood though base flood elevations and flood hazard factors have not been determined.

Zone AO: This zone corresponds to those areas subject to shallow flooding (one to three feet) in the event of a 100-year storm.

Zone B: Areas subject to flooding in the event of a 500-year flood; areas subject to a 100-year flood with average flood-water depths anticipated to be less than one foot; or areas protected from the base flood by levees.

Zone C: This zone refers to those areas subject to minimal flooding or areas not anticipated to be affected by flooding.

A Flood Insurance Rate Map produced for the City of Barstow, effective August, 1979, indicated a large portion of the City was at risk in terms of flooding.

The upper reaches of a typical stream channel are situated in the floor of steep canyons. An alluvial fan located at the mouth of the canyon consists of rock, gravel, and sediment transported by stream action. These alluvial fans are gently sloping, extending from the canyon mouth to the valley floor. Intense storms, the steep gradients of the canyon slopes drained by the



stream, and the lack of ground cover that would reduce runoff rates all contribute to large quantities of water flowing at high velocities in these intermittent channels. When this streamflow reaches the mouth of the canyon and flows on to the alluvial fans, the waterflow velocities are reduced, resulting in the deposition of larger rocks. Water velocities continue to be reduced in the course of the movement of water down the alluvial fan, resulting in additional deposition. In addition, the permeable nature of the soils that comprise the alluvial fan also results in some absorption of water.

Many of these alluvial fans have been developed due to the rapid growth in Southern California. The flood hazards in areas such as this are not only confined to the effects of water runoff but also the debris and sediment carried by the runoff.

The Mojave River is typical of major Southern California drainage courses. The drainage area is 1,290 square miles and has the potential of carrying large discharges generated from major storms, although it is a dry sand wash most of the time. This apparent lack of water has resulted in a dangerous condition with development occurring in the flood plain without the realization of the flood potential. The last major flood, which occurred in 1969, caused flooding of the residential area along Crooks Avenue adjacent to the Mojave River (A-4).

The Flood Insurance Study identified the principal flooding problems affecting the City. The Study indicated that flood water from the Mojave River had the greatest potential for causing flood-related damage to the City. The Study also stated a similar situation exists for several channels that direct flows from the adjacent hillsides into the Mojave River.



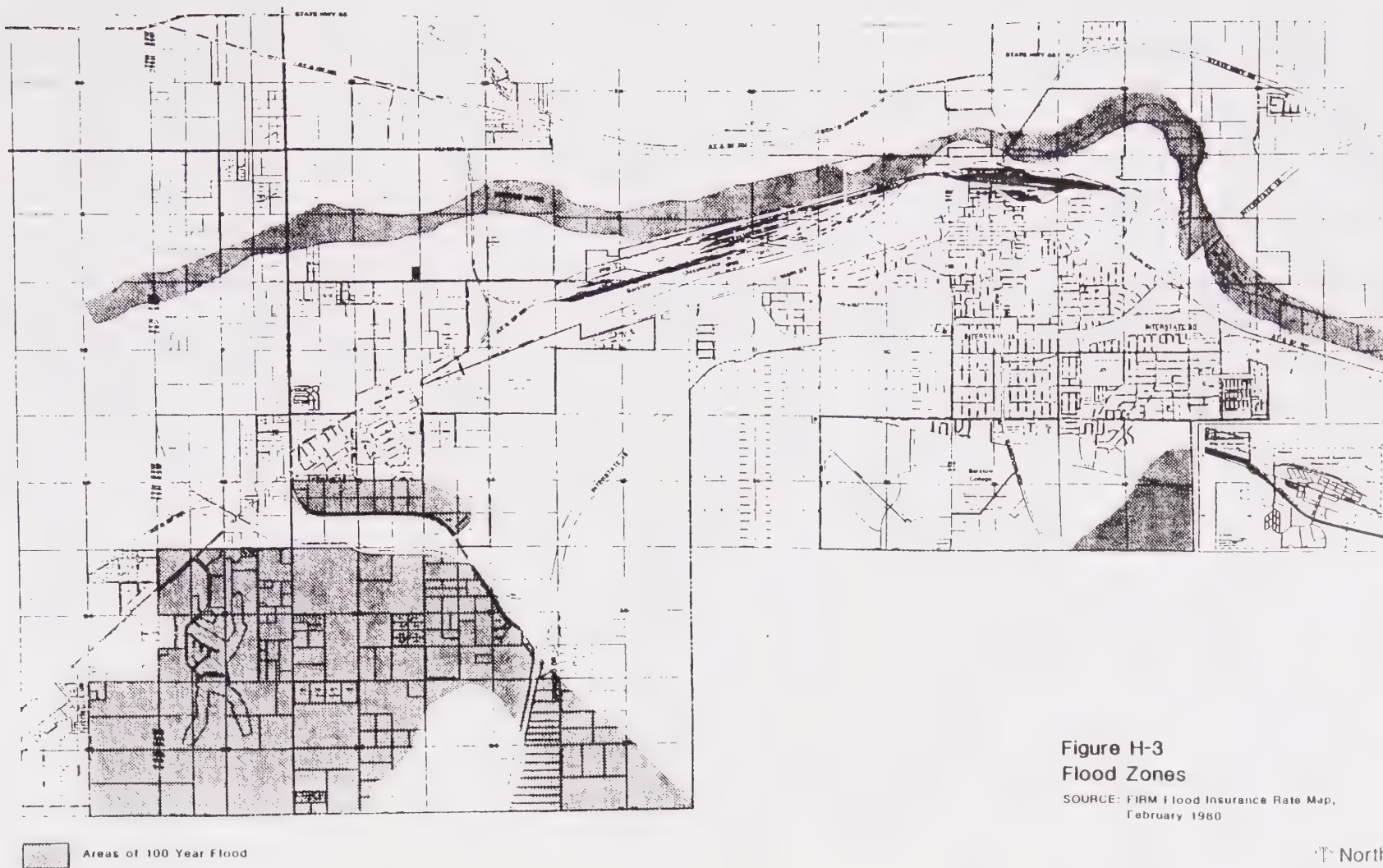


Figure H-3  
Flood Zones

SOURCE: FIRM Flood Insurance Rate Map,  
February 1980





## 2.4 Erosion

Erosion is a broad term that refers to the "wearing away" of the land surface by the detachment and transport of soil and rock material. The primary agents of this process are water and wind.

The State Urban Geology Master Plan identifies four major problem areas associated with water-caused erosion that merit consideration from a land planning and development standpoint:

- ° Uncontrolled runoff undermines building foundations and roadbeds and triggers landslides by removing lateral support.
- ° Eroded sediment and debris accumulate in storm drains and reservoirs and reduce holding capacity.
- ° Erosion degrades the land surface by gullyng, removing top soil from agricultural land, and covering lowlands with eroded debris.
- ° Erosion products entering water courses result in water quality degradation.

The arid nature of the Barstow region actually accelerates the rate of erosion caused by water. The lack of precipitation results in an absence of vegetative groundcover and, as a result, the soils are unprotected. The absence of vegetation and the steep gradient of the topography in the hills result in high water velocities. The water velocity is a primary factor to consider in determining rates of erosion.

Erosional concerns specific to Barstow include:

- ° A generally sparse native vegetational cover to inhibit soil erosion, rills, and gullyng.
- ° Sporadic, intense rainstorms that result in excessive surface flows.
- ° An alluvial soil that is relatively loose and uncompacted.

Generally, most runoff is carried to the Mojave River along the dry stream channels. However, as development continues and expands into outlying areas, erosion may cause problems to development near these channels.

Wind is a second major agent in the weathering process. Wind erosion is common in those areas of the world where soils are generally unprotected and prevailing winds transport the exposed surface materials. This movement of sand and soil, referred to as aeolian transport, is common throughout the Mojave and Colorado Deserts in Southern California. Several conditions in Barstow exist which make it susceptible to this hazard.





Prevailing breezes of 10 to 20 miles per hour originate from the northwest-to-southwest quadrant, generally blowing in a direction parallel to the Mojave River. Strong winds, however can occur in every month of the year. The composition and nature of the soils in the Barstow area are typically unconsolidated alluvium and dune sand which can become airborne when the wind reaches approximately 12 miles per hour. In addition, wind direction during wind storms often fluctuates, allowing the movement of sand which was previously deposited by wind from a slightly different direction.

Winds exceeding 12 miles per hour occur 36 percent of the time and can be expected every month of the year. Generally, April, May and June are the windiest months and December and January are typically the calmest.

Blow sand damage to both urban and agricultural uses can result in substantial economic losses. Damage to agriculture during a sand storm can result in deposition from an adjacent area or on-site erosion of the topsoil. Urban related damage is generally limited to equipment and buildings.



### 3.0 Man-Made Hazards

The term "man-made" refers to potential upset resulting from an induced or accidental occurrence indirectly or directly related to human activity. The majority of the potential hazards include those commonly found in an urban setting such as Barstow's and include structural fires, industrial hazards, and traffic-related accidents. Other types of hazards not found in urban areas include those related to the operation of a major truck terminal and hazards associated with rail traffic.

There has been little regulation of the disposal of domestic and industrial wastes until recently. This lack of regulation has resulted in the indiscriminate dumping of various waste materials, including hazardous wastes, in many land disposal sites around the country. California law defines hazardous waste as any waste material, byproduct, or mixture of waste materials which is toxic, corrosive, flammable, an irritant, a strong sensitizer or pressure generator through decomposition, heat or other means. These materials may cause serious injury or illness to humans, domestic livestock, or wildlife. Approximately 800 materials have been designated as "hazardous" and are identified in "Landfill Disposal of Hazardous Wastes and Sludges" by Marshall Sittig, which is available from SCAQMD. Many trucks and trains traveling on the major transportation links are carrying materials that would present a major health hazard to the residents of Barstow in the event of an accident.

The city is bisected by a major freeway (Interstate 15) which links the Los Angeles metropolitan area with points east and serves as a major transportation route for long haul truck transport. In addition, the Atchison, Topeka and Santa Fe (AT&SF) and the Union Pacific Railroads operate on facilities that generally bisect the planning area. Trains operating on this railroad pass through developed areas of the city, including portions of the old downtown. Because the railroads and interstate highways are federally controlled or regulated, the City's options in regulating transport on the facilities are limited or non-existent.

The chances of a major incident are considered greater than average in Barstow even though there are no known hazardous material storage facilities within the area. Professional clean-up and stabilization must come from the San Bernardino area or Los Angeles County. The Fire District recognizes its responsibility to protect the community and maintains three full-time personnel as members of the San Bernardino County Haz-Mat Response Team. As members they receive regular training and have access to state and county owned vehicles, equipment and information.

In the event of an accident involving hazardous materials, San Bernardino County provides assistance with manpower from Environmental Health, other professional fire department personnel, state provided vehicle with containment and decontamination equipment. Barstow Fire District will provide trained personnel, protective clothing, response information and technical assistance. Existing mutual aid systems can obtain resources state-wide for the very serious emergency.



## 4.0 Noise

### 4.1 Introduction

Noise can be generally defined as unwanted or unpleasant sound. Of all neighborhood problems reported in a 1975 U.S. Housing Census survey, street noise led as the principal disturbance. For most people, the usual consequences of noise are associated with an interference with speech and other communication, a distraction at home and at work, the disturbance of rest and sleep, and the disruption of various recreational pursuits. The effects of noise are widespread and include both psychological and social effects, as well as physiological effects.

The State of California requires each city and county to adopt a noise element in its General Plan and this section of the Hazards Element Technical Report examines many of the components of the noise element. The noise element must describe the existing and future noise environment and an inventory of current and projected numbers of persons exposed to various levels of noise throughout the community. Noise-sensitive land uses such as hospitals and schools must also be identified. This information will serve as a guideline for the development of land use policies designed to achieve noise-compatible land use.

In order to be an effective reference for land-use decisions in Barstow and to meet State requirements, this technical report begins by describing noise and how it is measured. Assumptions used in correlating human sensitivity to noise to actual noise measurements are listed as are State guidelines for land use compatibility with the noise environment. The report then examines the existing noise conditions in Barstow, indicating major noise generators and plotting noise contours based on the noise generation. Noise-sensitive land uses are located and point source noise measurements are taken at these places. The goals and policy section of the noise element will use this information to set land use and circulation policy and recommend implementing methods to mitigate existing and potential noise conflicts. It will also relate the noise element to the other elements in the general plan.

### 4.2 Noise Measurement

Noise and other forms of sound in air are caused by vibrations in the air pressure around its steady-state atmospheric level. Such vibrations in the case of noise (unwanted sound), are characterized by rapidly changing frequencies and sound pressures. Human hearing is most sensitive to sounds between 500 and 10,000 cycles per second; however, the average hearing will pick up frequencies from about 20 cycles per second to 20,000 cycles per second or hertz (Hz), and sound pressures from about 0.0002 microbars to 2,000 microbars, a ratio of ten million to one.





Noise levels may be described using a number of methods designed to evaluate the "loudness" of a particular noise. The most commonly used units for measuring the level of sound is the decibel (dB), Energy Equivalent Level (Leq), and the Community Noise Equivalent Level (CNEL). The predominant sound level criteria in use in California at the present time utilizes the Energy Equivalent Level (Leq) and the Community Noise Equivalent Level (CNEL).

The decibel scale is designed so that an increase of the units on the scale represents a tenfold (logarithmic) increase in sound energy and approximately a doubling of prescribed loudness. The decibel scale is standardized to a reference pressure so that the threshold of human hearing is approximately 0 dB and the threshold of potential eardrum rupture is 140 dB.

The Equivalent Noise Level (Leq) is the average of the sound level energy for a one-hour period and employs an A-weighted decibel correction which corresponds to the optimal frequency response of the human ear.

Noisiness, as opposed to loudness, is subjective and is a reflection of annoyance and is not measured well using a dBA scale alone. For two sounds with the same loudness, the one with more energy in the high audible frequency range would be considered more annoying by the human ear. Regular warbling sounds, pure tones, and human speech are more annoying than random background noise emitting the same energy, but are also not emphasized by "A" weighted measurements. Only tests of actual human reactions to noise in any specific environment could best monitor annoyance. Without performing such tests, scales measuring noise over a length of time have been developed to correspond to the human reaction to noise.

In order to better relate noise levels to human response, energy-averaged noise levels are weighted to account for increase sensitivity in evening at nighttime hours. The Community Noise Equivalent Level (CNEL) accounts for this sensitivity by adding 5 decibels to sound levels in the evening between 7:00 p.m. and 10:00 p.m. and 7:00 a.m. This weighting relates noise measurements to observed community reaction and is one of two sound level measurements accepted by the State for use in the General Plan.

The other accepted method is a day-night average level, or L(dn) which, like CNEL, is a 24-hour A-weighted energy equivalent level. The L(dn), however, only weights the sound levels between 10:00 p.m. and 7:00 a.m. with a 10 decibel addition, but does not weight sound levels between 7:00 p.m. and 10:00 p.m. as in the case of the CNEL. For most highway traffic-related noise situations,  $CNEL = L(dn) + 0.5 \text{ dB}$ .





### 4.3 Human Sensitivity to Noise

Noise measurements are meaningless without an understanding of the relationship to human sensitivity. The human response to noise is varied and extremely complex. Noise effects have been divided and described in terms of physiological effects, behavioral effects, and subjective effects. Physiological effects include both temporary effects such as startle reactions and temporary hearing threshold shifts, along with enduring effects such as those from prolonged sleep loss or permanent hearing damage. Behavioral effects involve interference with ongoing activities such as speech, learning, listening, or distraction from the performance of various tasks. Subjective effects are a combined result of behavioral and physiological effects and are described in such terms as "annoyance", "nuisance", "disturbance", or "dissatisfaction."

The Environmental Protection Agency (EPA), after reviewing numerous studies, has reported that permanent noise-induced hearing threshold losses of greater than 5 dBA can occur when the  $L(eq)$  during an 8-hour period each day exceeds 75 dBA or when the 24-hour  $L(eq)$  exceeds 70 dBA. The EPA also reported the maximum level to protect the vast majority of the population from interference with speech or other activity outdoors at an  $L(dn)$  of 55 dBA and indoors at an  $L(dn)$  of 45 dBA. Since evening and nighttime noises are relatively much lower than daytime noises for these groups,  $L(dn)$  and CNEL measurements correspond closely to the 24-hour  $L(eq)$ .

Activity also becomes a factor in sensitivity to noise. Hospitals are particularly sensitive as noise could prevent sleep and, therefore, for many patients, noise could prolong a recovery period. As sleep is one of the primary activities in residences, taking up approximately one-third of the day, these land uses are also sensitive to noise. Noise can distract from reading, studying, and listening, making schools and libraries vulnerable to noise intrusion. Noise is tolerated to a much greater extent in commercial and industrial areas, where it does not interfere with human activities as much. Figure H-4 illustrates guidelines for land-use compatibility with noise levels as established by the State Office of Noise Control.



Land Use Category	Community Noise Exposure Ldn or CNEL, dB					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes						
Residential - Multiple Family						
Transient Lodging - Motels, Hotels						
Schools, Libraries, Churches Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheatres						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables Water Recreation, Cemeteries						
Office Buildings, Business Commercial and Residential						
Industrial, Manufacturing Utilities Agriculture						

#### Interpretation

 Normally Acceptable

Specified Land Use is Satisfactory, Based Upon the Assumption that Any Buildings Involved are of Normal Conventional Construction, Without Any Special Noise Insulation Requirements.

 Conditionally Acceptable

New Construction or Development Should be Undertaken Only After a Detailed Analysis of the Noise Reduction Requirement is Made and Needed Noise Insulation Features Included in the Design. Conventional Construction, but with Closed Windows and Fresh Air Supply Systems or Air Conditioning, Will Normally Suffice.

 Normally Unacceptable

New Construction or Development Should Generally be Discouraged. If New Construction or Development Does Proceed, a Detailed Analysis of the Noise Reduction Requirements Must be Made and Needed Noise Insulation Features Included in the Design.

 Clearly Unacceptable

New Construction or Development Should Generally not be Undertaken.





#### 4.4 Existing Noise Environment

The sources of noise in Barstow are for the most part transportation-related, with truck traffic on Interstate 15 being the primary source of intrusive noise in the City. State law requires the noise element to consider noise from a variety of sources, including highways, major roads, railroad operations, aviation facilities, industrial plants, and any other locally identified noise sources. This report evaluates noise from the highways and roads with daily traffic volumes above 5,000 vehicles per day, as well as noise from the railroad tracks, classification yards, and the Barstow-Daggett airport. These are traditional sources of noise which can create a disturbance to noise-sensitive land uses.

Road and Highway Traffic - The roads and highways surveyed include Interstate 15, Interstate 40, State Highway 58, Main Street, Barstow Road, Muriel Drive, Mountain View Road, Montara Road, Rimrock Road, First Street, Irwin Road, and Armory Road. Information collected included traffic volumes, percentage of truck traffic, time of day for traffic, average speed, and general acoustical conditions. With this information, the CNEL at any particular distance from the road could be estimated. Roads with average daily traffic volumes less than 5,000 vehicles generally did not have enough noise to be an issue for land-use compatibility, and they will not be further examined.

The model used to estimate highway noise is one developed by the U.S. Department of Transportation, entitled FHWA Highway Traffic Noise Prediction Model (1978). Assumptions for most roads are that vehicles travel at the posted speed limit; truck traffic as a percentage of total traffic was assumed to be 2.0 percent medium-size trucks and 1.0 percent heavy trucks on non-truck route roads. Other percentages of truck traffic were based on the 1976 noise element; 70 percent of all traffic occurs between 7:00 a.m. and 7:00 p.m., 15 percent occurs between 7:00 p.m. and 10:00 p.m., and 15 percent occurs between 10:00 p.m. and 7:00 a.m. Table H-3 shows the results of this model, giving CNELs for each street based on distance from the median.

Railroad Tracks and Classification Yards - The information for this section has come mostly from the 1976 noise element prepared by Haworth/Anderson/Lafer. It has been based on the EIR for the Barstow classification yard and a Wyle Laboratories Report (WCR 73-5) which assesses railroad noise. This section has been updated to reflect current operating conditions on the tracks and in the classification yards. The primary source of noise in connection to the railroad operations in Barstow involves line operations. Line operations refer to the movements of locomotives and freight cars over the main line tracks and local branch tracks.

Several variables must be taken into account in determining actual noise levels produced by line operations. For the locomotive, the noise emitted by the engine is independent of the train's velocity; however, the noise output of the locomotive is highly dependent on track grade conditions. The main A-weighted noise output of the engine increases slightly under uphill conditions, and decreases rapidly when operating on descending grades. Downhill grade conditions (2 to 1 1/2%) will result in increased noise output emanating from the cooling fans of dynamic braking systems.



(A-Scale Weighted Sound Levels<sup>1</sup>)

dB(A) <sup>2</sup>	OVER-ALL LEVEL (Sound Pressure Level Approx. 0.0002 Microbar)	COMMUNITY (Outdoor)	HOME OR INDUSTRY (Indoor)	LOUDNESS (Human Judgment of Different Sound Levels)
130	UNCOMFORTABLY LOUD	Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 Ft. (130)	Oxygen Torch (121) <sup>3</sup>	120 dB(A) 32 Times As Loud
110		Turbo-Fan Aircraft @ Take-Off Power @ 200 Ft. (118) <sup>4</sup>	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times As Loud
100	VERY LOUD	Jet Flyover @ 1000 Ft. (103) Boeing 707, DC-8 @ 6080 Ft. Before Landing (106) <sup>5</sup> Bell J-2A Helicopter @ 100 Ft. (100) <sup>6</sup>		100 dB(A) 8 Times As Loud
90		Power Mower (96) Boeing 737, DC-9 @ 6080 Ft. Before Landing (97) <sup>5</sup> Motorcycle @ 25 Ft. (90)	Newspaper Press (97)	90 dB(A) 4 Times As Loud
80	MODERATELY LOUD	Car Wash @ 20 Ft. (89) <sup>7</sup> Prop. Plane Flyover @ 1000 Ft. (88) Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 Times As Loud
70		High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. from Pavement Edge, 10 A.M. (76 ± 6) <sup>7</sup>	Living Room Music (76) TV-Audio, Vacuum Cleaner (70)	70 dB(A)
60	QUIET	Air Conditioning Unit @ 100 Ft. (60)	Cash Register @ 10 Ft. (65-70) <sup>1</sup> Electric Typewriter @ 10 Ft. (64) <sup>1</sup> Dishwasher (Rinse) @ 10 Ft. (60) <sup>1</sup> Conversation (60)	60 dB(A) 1/2 As Loud
50		Large Transformers @ 100 Ft. (50)		50 dB(A) 1/4 As Loud
40	JUST AUDIBLE	Bird Calls (44) <sup>1</sup> Lower Limit, Urban Ambient Sound (40)		40 dB(A) 1/16 As Loud
10		[dB(A) Scale Interrupted]		
0	THRESHOLD OF HEARING			

**PRIMARY SOURCE:** Cohen, Alexander; Anticaglia, Joseph R.; Jones, Herbert H., "Noise Induced Hearing Loss—Exposures to Steady-State Noise," Paper Presented at the American Medical Association Sixth Congress on Environmental Health, Chicago, Ill., 28-29 April 1969, Figure 1, p. 9, mimeo.

1 "Percentage distributions of observed A-Scale readings taken from 5-minute tape-recorded samples of the noise ... Weighing the different A-Scale levels found in such 5-minute time samples by the percentage of their on-time yielded equivalent continuous noise level values for the different equipment," p. 3.

2 This logarithmic scale is not shown as such graphically. Each increase of 10 dB means a tenfold increase in sound intensity or pressure, and an approximate doubling of the "noisiness" to average human ears and nervous system, as shown in the righthand column.

3 "Unless otherwise specified, listed sound levels are measured at typical operator-listener distances from [noise] source." Figures in parenthesis after noise source are dB(A), decibels measured on the A-Scale," which emphasizes the sounds in the 1000-4000 Hz range, and is based approximately on the measured aural response (Richard C. Potter).

4 Kryter, bibliography reference No. 51.

5 **Business Week**, 7 February 1970, p. 44. Assumes 12dB difference between Effective Perceived Noise Decibels and dB(A).<sup>149</sup>

6 Veneklasen, Paul S., Personal Communication, 10 March 1969, p. 1.

7 Sound meter reading by senior author.



Table H-2  
Examples of Typical Sound Levels





TABLE HTR-3: ESTIMATED NOISE LEVELS FROM HIGHWAY TRAFFIC (CNEL)

STREET	1986 ADT (Percentage trucks)	DISTANCE FROM MEDIAN				
		50 feet	100 feet	200 feet	400 feet	800 ft.
Interstate 15	(16% trucks)					
South of Lenwood Road	23,700	78.2	75.2	72.2	69.2	66.2
Lenwood Road - West Main Street	24,100	78.3	75.3	72.3	69.3	66.3
West Main Street - Barstow Road	25,700	78.6	75.6	72.6	69.6	66.5
Barstow Road - I-40	26,000	78.6	75.6	72.6	69.6	66.6
I-40 - East Main Street	18,100	77.1	74.1	71.0	68.0	65.0
North of East Main Street	20,600	77.6	74.6	71.6	68.6	65.6
Interstate 40	(12% trucks)					
I-15 - Montara Road	7,500	72.4	69.4	66.4	63.3	60.3
East of Montara Road	11,000	74.0	71.0	68.0	65.0	62.0
State Highway 58	(10% trucks)					
West of Irwin road	5,200	70.3	67.3	64.2	61.2	58.2
Irwin Road - First Street	5,700	70.7	67.7	64.6	61.6	58.6
First Street - I-15	5,200	70.3	67.3	64.2	61.2	58.2
Main Street	(7.5% trucks)					
West of Lenwood Road	5,000	65.1	62.1	59.1	56.1	53.0
Lenwood Road - I-15	16,600	70.3	67.3	64.3	61.3	58.3
I-15 - First Avenue	21,100	71.3	68.3	65.3	62.3	59.3
First Avenue - Seventh Avenue	24,400	72.0	69.0	66.0	62.9	59.9
Seventh Avenue - Muriel Drive	22,200	71.6	68.6	65.51	62.5	59.5
Muriel Drive - I-15	21,100	71.3	68.3	65.3	62.3	59.3
I-15 - I-40	11,000	68.5	65.5	62.5	59.5	56.5
Barstow Road	(3.0% trucks)					
South of City - Main Street	5,600	63.4	60.4	57.4	54.4	51.3
Muriel Drive	(3.0% trucks)					
Rimrock Road - Main Street	5,000	62.9	59.9	56.9	53.9	50.9
Montana Road	(3.0% trucks)					
Armory Road - Main Street	6,000	63.7	60.7	57.7	54.7	51.6
Rimrock Road	(3.0% trucks)					
Barstow Road - Muriel Drive	7,000	64.4	61.3	58.3	55.3	52.3
First Avenue	(4.0% trucks)					
Main Street - Irwin Road	13,400	67.7	64.7	61.7	58.7	55.7
Irwin Road	(4.5% trucks)					
North of First Avenue	7,800	65.7	62.7	59.7	56.7	53.6
Armory Road	(3.0% trucks)					
Muriel Drive - Broadway Avenue	5,500	63.3	60.3	57.3	54.3	51.3

Source: C/B/A 1986 using U.S. Department of Transportation "FHWA Highway Traffic Noise Prediction Model," 1978.



Car noise, attributed to wheel/rail interaction, is highly dependent on speed, increasing approximately 6 dB for each doubling of train velocity. A number of other variables, primarily relating to physical track or wheel conditions, is also significant in influencing wheel/rail generated noise. These factors are summarized in Table H-4. Generally, these factors tend to increase the noise level generated by cars, but do not significantly alter the shape of the frequency spectrum or otherwise influence the "character" of the noise. An exception to this generalization is the occurrence of wheel "screech" on short radius turns. This screech, as the term implies, is primarily a high frequency (2500 to 5000 Hz) sound of a short duration and occurs on a random basis.

The 1976 noise element identified six dominant classification yard-based noise sources in Barstow:

- ° Hump engines
- ° Concentrated switching
- ° Multiple and single lines of idling engines
- ° Multiple and single lines of parked mechanical refrigeration cars
- ° Diesel load tests (at the existing diesel shop)

Typical noise levels generated by the classification yard operations are illustrated in Table H-5. The noise emitted by public address systems and car coupling impacts are also included for reference in that these sources are distinguishable; however, their cumulative noise effect is secondary to the other items listed.

- ° Distributed switcher movements over a large area of track
- ° Distributed car impacts over a large area of track
- ° Industrial spotting
- ° Train arrivals and departures (other than trains that bypass the yard without stopping)
- ° Inert (hydraulic) retarders at the downhill end of the classification tracks



TABLE HTR-4  
VARIABLES AFFECTING FREIGHT CAR  
WHEEL/RAIL NOISE EMISSION

Variable	Increase in A-Weighted Noise Level*	Comments
1. Jointed Rails (vs Welded)	4 to 8 dB(A)	Generally no correction for main line tracks; assign higher value to low speed classified track
2. Presence of Grade Cross- ings and Frogs	6 to 8 dB(A)	
3. Wheel Irregularities - Flat Spots or Built-up Tread	to 8 dB(A)	
4. Passage Over Bridgework a. Light Steel Structure b. Heavy Steel Structure c. Concrete Structure	to 30 dB(A) to 15 dB(A) 0 to 12 dB(A)	
5. Short Radius Curves a. Less than 600 ft. radius. b. 600 to 900 ft. radius	15 to 25 dB(A) 5 to 15 dB(A)	Random occurrence of wheel squeal

\* These factors are assumed to act individually. When in combinations of two or more, the net increase will not be equal to the sum of each component, but most likely the largest individual factor.





TABLE HTR-5  
TYPICAL MEAN-MAXIMUM NOISE LEVELS  
PRODUCED BY RAILROAD YARD OPERATIONS

Significant Yard Noise-Producing Operations	Noise Level at 100 ft., dB(A)
1. Switcher engine movements	
a. Steady Pull Through Yard	76-80
b. Classification Start-Stop Cycle	80
2. Idling Locomotives	
a. Road Engine*	71
b. Switch Engine*	65
3. Car Impacts	
a. Single or multiple cars into parked cars - coupling	91
b. Chain reaction impacts - start-up or stopping of a line of cars	91
4. Car Retarders	
a. Master	110
b. Group retarders or individual tract retarders	110
c. Inert or pull-out retarders	95
5. Loudspeakers and PA Systems (at 0 degrees)	90-95
6. Auxiliary Service Operations Performed in Yards	
a. Engine load tests (at No. 8 Throttle)	92
b. Locomotive Service Racks	(as in 2a)
c. Operatio of stationary mechanical refrigeration car	
° Engine-Generator Side	64-74
° Condenser Side	59-68

Source: Assessment of Noise Environments Around Railroad Operations, Wyle Laboratories Report WCR 73-5, 1973.



The following assumptions were made in analyzing and developing noise contour levels for local railroad operations:

- ° Hump Engine Operations - A single-switching locomotive will be used to push cuts of cars over the crest of the hump from the receiving yard. It was assumed that 1,500 cars will be humped per 24-hr. period and this activity will be uniformly distributed over each hour of the day and night.
- ° Trim Switcher Locomotive in Departure Yard - East End - Two switches will be concentrated at the east end of the departure yard and operated continuously during a 24-hr. period.
- ° Trim Locomotive in Classification Yard - East End - Two switches will also be operated continuously at the east end of the classification yard per 24-hr. period.
- ° Master, Group and Tangent Point Retarders - 1,500 cars will be humped and passed through the retarder over a 24-hr. period. There will also be 2000 cars per day classified for re-humping. The mini-hump operations were not considered as a serious noise source to warrant noise estimates.
- ° Locomotive Service Facility - The diesel service tracks will provide four rows of four idling road locomotives at all hours.
- ° Engine Ready Tracks - The ready tracks for the engine service have an average usage of five rows of six idling road engines per row at all hours of the day or night.
- ° Switcher Locomotive Pooling Area - In the switcher pooling area there will be open row of two switchers for a five-hour total duration between 7:00 a.m. and 10:00 p.m. and for three hours between 10:00 p.m. and 7:00 a.m.
- ° Mechanical Refrigerator Cars - On the average, a row of 15 mechanical refrigeration cars will be operating throughout a 24-hour period.
- ° Engine Load Test Facility (Load Box) - The load box facility will average three load tests between 7:00 a.m. and 10:00 p.m. and two road tests between 10:00 p.m. and 7:00 a.m.
- ° Through Train Operations - Seven eastbound Union Pacific trains and seven westbound Union Pacific trains will pass on the mainline tracks daily. In addition, there will be 14 Santa Fe through trains which will stop in Barstow for crew changes and 500-mile inspections, rather than for classification. These will not be considered as highspeed train traffic for the purposes of the noise analysis (for reasons previously explained). The average speed of a Union Pacific train will be 50 mph, and the average train length 5,000 feet.



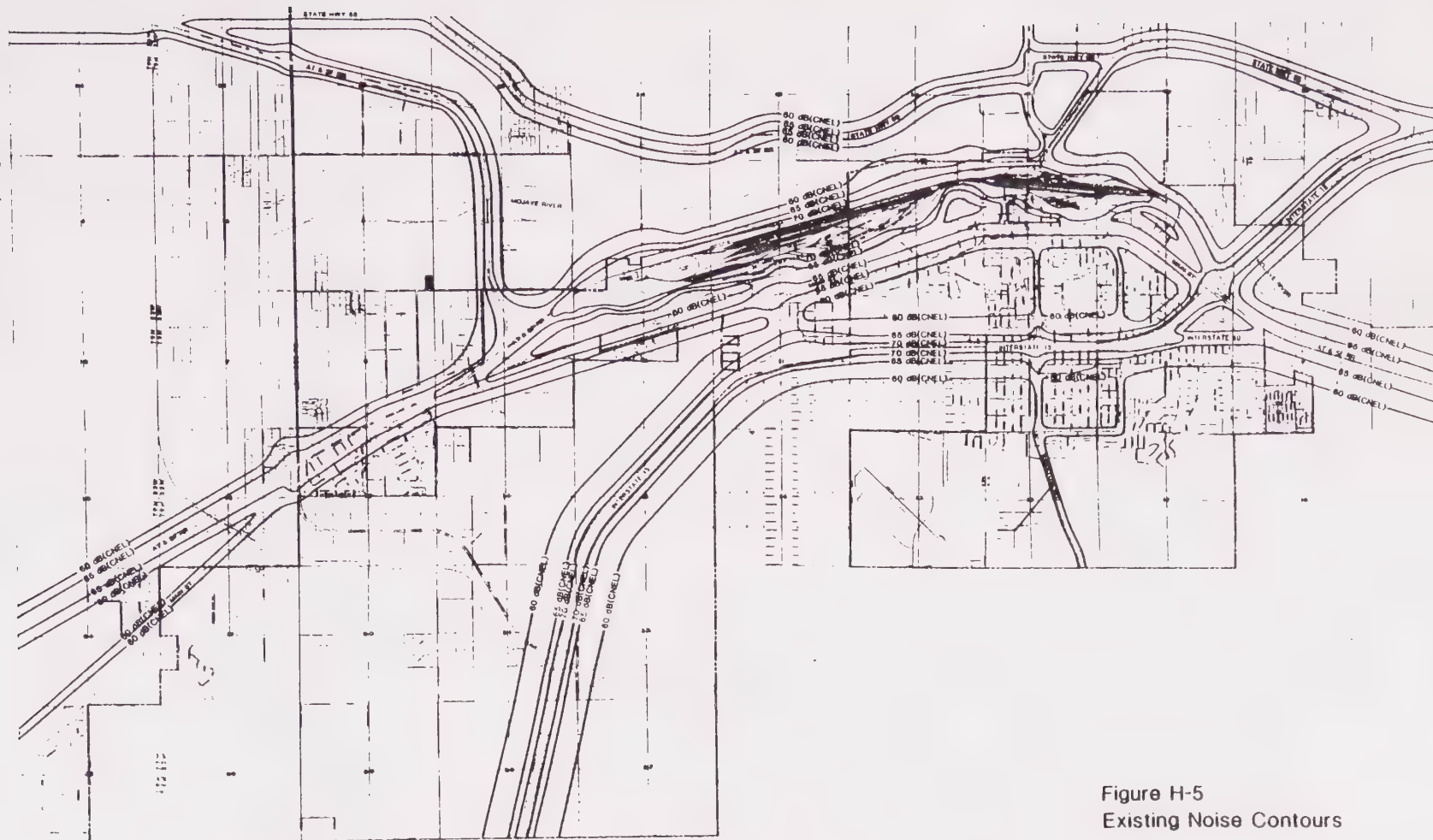
- ° Approaching Trains - Trains approaching the yard's west end will average 25 mph, and be 5,000 feet in length. On the Los Angeles tracks, 17 approaching trains and 17 departing trains will operate through the yard during a typical 24-hour day. On the Mojave District (Bakersfield) line, nine trains will approach the yard, and eight trains will depart during a 24-hour period.

The assumptions tabulated above reflect the opinion of railroad engineering officers regarding "average" conditions. Quite obviously there will be wide fluctuations in the activities at the Barstow yard. For instance, during the fruit shipping season, the number of mechanical refrigerator cars will increase substantially. The number of road locomotives being serviced or in a ready condition at the yard will also vary depending on the overall motive power requirements on the Santa Fe coast lines. It would be possible to have as many as six locomotives in a ready condition, while at other times only one or two locomotives will be standing idle.

Local Airport Operations - The nearest airport to Barstow is the Barstow-Daggett Airport, located 10 miles from the eastern city limits. At present, the Barstow-Daggett Airport serves approximately 25,000 operations per year. Current levels of activity average some 70 flights per day. The airport accommodates substantially all general aviation propeller-type aircraft under 12,500 pounds. Since the re-opening of Fort Irwin, it has also accommodated military aircraft. C-130 and C-141 cargo planes make up about one-eighth of daily flights, and helicopters account for 18-20 flights per day. Other military craft using the airport include OB-10's and C-12's. Very few jets use the field. At the present time, the Barstow-Daggett Airport does not have a significant impact on City noise as its flight paths generally avoid Barstow.

Figure H-5 shows existing noise contours for the Barstow planning area based on current noise generation.





Based on 1984 Property and/or Noise Prediction, Model 1 (H10-10-77-108)  
and Assessment of Noise Levels from the Proposed Project Operations  
by the Environmental Impact Statement.

Figure H-5  
Existing Noise Contours

SOURCE: Cotton/Beland/Associates, Inc.

North  
0 4000  
Scale in feet

BARSTOW  
GENERAL PLAN





#### 4.5 Implications Concerning Noise and Land Use Planning

As discussed in the section on sound characteristics, some land uses are more sensitive to noise than others. In Barstow, the major noise-sensitive land uses include residences, schools, and a hospital. Twelve sites were located for point-source measurements. A method set up by CalTrans for estimating  $L_{eq}$  was used for these point-source measurements. Since sound levels are constantly changing, samples of noise were taken every 5 seconds on a sound-level meter calibrated by instruments traceable to the National Bureau of Standards. The measurements were taken 50 feet from the median and were recorded. A 95% confidence test was applied to the samples to ensure that the measurements were representative of the noise at the point. The confidence test for the sample is reproduced in Table H-6.

TABLE HTR-6  
95% CONFIDENCE TEST FOR NOISE SAMPLING

Total No. of Samples	Error Limit	$L_{10}$	Error Limit	Allowable Skewing
50	1st Sample	5th Sample	10th Sample	None
100	4th Sample	10th Sample	16th Sample	One
150	7th Sample	15th Sample	23rd Sample	One
200	11th Sample	20th Sample	29th Sample	One
250	15th Sample	25th Sample	35th Sample	One
300	19th Sample	30th Sample	41st Sample	One
350	24th Sample	35th Sample	46th Sample	One
400	28th Sample	45th Sample	52th Sample	One

Note: The 95% confidence is met if the Upper and Lower Error Limits are within 3 dBA of the  $L_{10}$  Level.

Source: California Department of Transportation

If, for example, after 100 tests the 4th and 16th samples counting from the top are each within 3 dBA of the 10th sample, the sample would be within a 95 percent confidence level of equalling the actual  $L_{eq}$ , and no further testing would be needed. Energy equivalents would then be applied to each decibel reading and an  $L_{eq}$  would be computed based on the frequency of counts at each energy level.



When compared with State land-use compatibility standards as shown in Figure PHTR-19, it is evident from the noise contour map and the point-source measurements that intrusive noise from the I-15 freeway and some major roads can create a negative influence on the quality of life in some areas, though the majority of planning area is relatively quiet.

Much of the land exposed to high noise levels is currently undeveloped and thus the ambient noise levels in these areas do not result in any adverse impacts on human health. The principal developed areas that are adversely affected by noise are located adjacent to the major transportation corridors that traverse the planning area. The most significant of these "corridors" is the I-15 Freeway. Approximately 1,221 acres with residential development are located in areas subject to ambient noise (CNEL) in excess of 60 dBA. A substantial portion of this residential land has only scattered development at the present time though an estimated 1,750 dwelling units are located in these areas subject to noise levels exceeding 60 dBA.



Table HTR-7 contains the results of the point-source measurements taken during the daytime in off-peak hours.

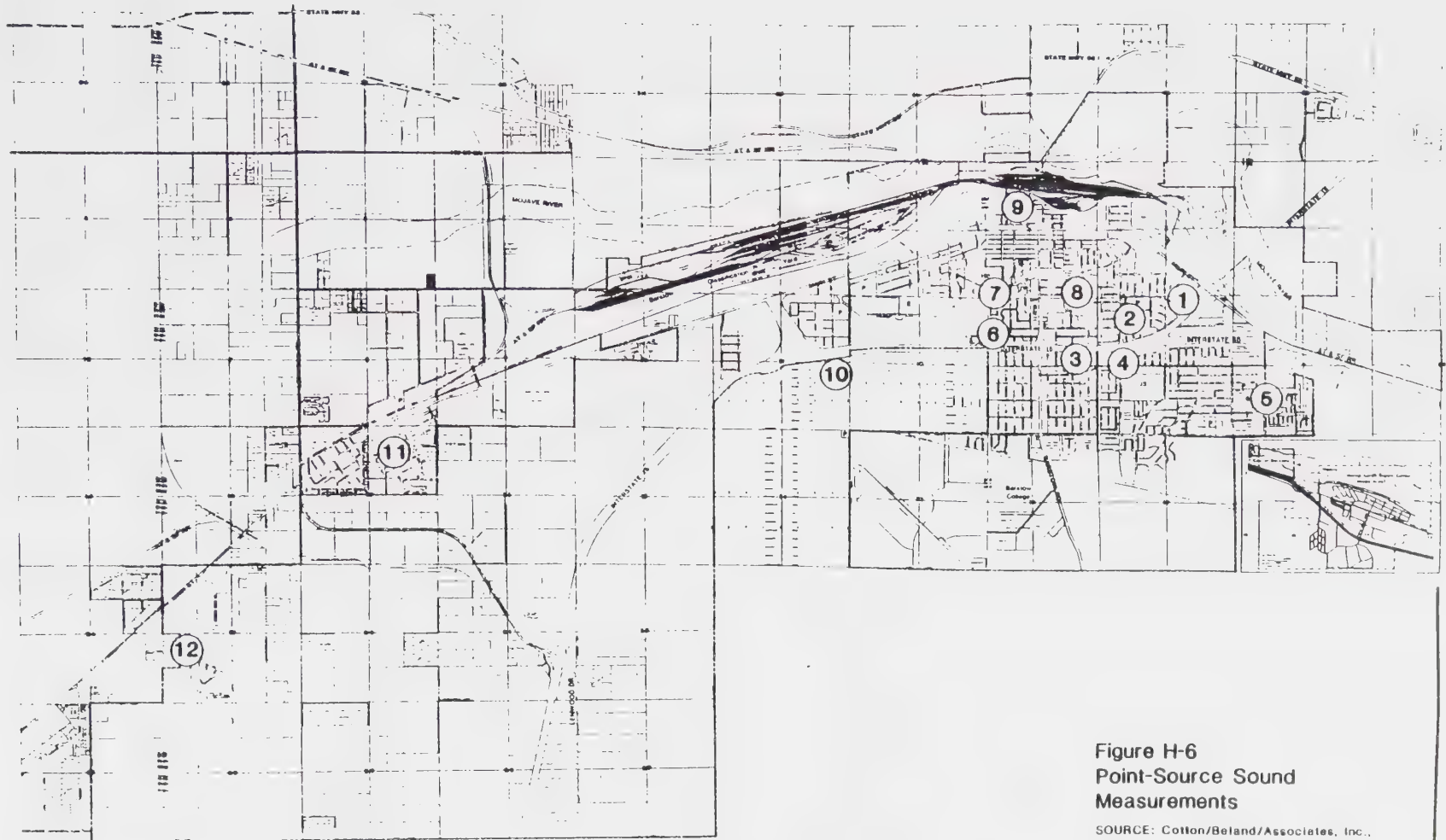
TABLE HTR-7  
POINT-SOURCE NOISE MEASUREMENTS  
August, 1986

Location	L(eq)	Comments
1. West Side Roberta Street, S. of Coolwater Ln.	59 dBA	I-15 freeway accounted for majority of noise in this residential area.
2. Muriel Drive, N. of Navajo	60 dBA	Cameron School area, cars travelling 35 mph.
3. Armory Road, W. of Purple Sage	62 dBA	Trucks on I-15 freeway accounted for majority of noise in this residential area.
4. Armory Road, E of Muriel	63 dBA	Barstow Jr. High, cars travelling 30=35 mph.
5. Montara Street, S. of Aurora		Montara School, Cars travelling 35 mph.
6. South Side of Grace Street, E. of Baldwin Ln.	58 dBA	I-15 freeway accounted for majority of noise in this residential area.
7. Mountain View, W. of Mt. Vernon	61 dBA	Barstow High School, cars travelling 35 mph.
8. Mountain View, E. of Seventh Avenue	61 dBA	Hospital and parochial school, heavy illegal off-road motorcycle activity across street from hospital.
9. Cottage Street, E of Second Avenue	51 dBA	Continuation High School, noise levels would be louder when trains pass.
10 Apache Ave., W. of I St.	61 dBA	Freeway above grade accountable for majority of noise in this residential area.
11. Ash Road, N. of Cheryle St.	Below 45 dBA	Lenwood School - little traffic and background noise.
12. Country Club Drive, N. of Capella	Below 45 dBA	Little traffic or noise in this residential area.

Source: C/B/A/







August 1986 Numbers refer to Table H-6

Figure H-6  
Point-Source Sound  
Measurements

SOURCE: Cotton/Beland/Associates, Inc.,

North  
0 4000  
scale in feet

BARSTOW  
GENERAL PLAN



## **5.0 Emergency Services**

### **5.1 Law Enforcement**

Law enforcement services to the City of Barstow are provided by the Barstow Police Department. The Department's jurisdiction lies within the corporate city limits. Presently, there are 28 sworn officers on the Police force providing the City approximately 1.5 officers per 1000 residents. The Police Department maintains seventeen vehicles including ten patrol cars, five unmarked cars, and two community service officer vehicles.

California Highway Patrol also maintain offices and staff in Barstow. These agencies are available to provide additional assistance as needed or requested. Both of these agencies can also provide aerial services to the Barstow area. The Sheriffs Department also has a Mounted Patrol and Desert Search and Rescue Squad stationed in Barstow.

The City of Barstow has the highest clearance of felonies of the ten largest cities in the County including San Bernardino, Chino, Redlands, and Upland. According to 1984 criminal statistics, Barstow had a 64% clearance of felonies rate, 20% higher than the next closest city. Barstow also ranked fourth lowest in criminal activity of the ten cities (B-1).

### **5.2 Fire Protection**

Fire protection, including fire prevention, fire safety and paramedic services to the City of Barstow are provided solely by the Barstow Fire Protection District. The Barstow Fire District encompasses thirty-eight square miles and includes all of the City of Barstow, and the incorporated areas of Lenwood, Grandview, North Barstow and Barstow Heights.

Written Mutual Aid agreements exist with the Marine Base Fire Department, Daggett, New Berry Springs, and Ft. Irwin Fire Department. Other mutual aid under the California Master Mutual Aid Agreement is available from throughout the state but response times for the closest units are estimated at one hour.

The district operates from four stations: Station 361 (Headquarters Station) on Barstow Road in Central Barstow; Station 362 at Highway 58 and North Muriel in the unincorporated area of North Barstow; Station 363 in West Barstow at Avenue G and Nancy Street; and Station 364 located in the unincorporated area of Lenwood at Parris and West Main Street.

Current staffing of the district consists of 60 personnel including 23 full-time employees and 37 volunteer employees. Barstow Fire District operates five engine companies, one truck company and a paramedic/reserve squad. Full-time employees man one engine company and the paramedic unit; volunteers provide manning for the additional apparatus.

The Fire District currently has an ISO rating of Class 5. This rating is on a scale of 1 to 10, with one considered the highest rating. The last rating was completed in 1977. It is anticipated that the Fire District will ask for a new evaluation in 1987.



Response times generally fall within recommended ISO standards of five minutes throughout the district because of the strategic station location. Marginal areas are Grandview and Soapmine Road area because of long travel routes.

Water supplies for fire protection (fire flow) are considered adequate in Barstow proper and inadequate in surrounding areas. Central Barstow, from West Main and Avenue H to East Main at Montara and the general area north and south of Main Street are areas with adequate fire flow. Further east and further west on Main Street, south into Barstow Heights, Barstow College and Montara at Rimrock have inadequate fire flow. Lenwood Road at Interstate 15 has no water system, nor does the North Barstow area of Soapmine Road. Other areas lacking adequate water are West Main west of Avenue H, Mojave Manor, Lenwood, Sun and Sky Country Club development, Highway 58 to Waterman Road, and East Main to the Marine Corps Logistics Base.

Water for domestic needs and fire protection is provided by Southern California Water Company via wells, pressure pumps, storage tanks, and piping systems. Many of the areas considered inadequate are served by old 4-inch or 6-inch mains. Today's minimum standards are 6-inch looped mains or 8-inch for non-loop systems.

Staffing - According to the National Fire Protection Association and the ISO, there should be one fire fighter on-duty for every 1,000 residents. Estimated population for the district is 35,000 people, requiring 35 full-time employees on-duty each day. Actual manning is 10 per day. On-call staff and volunteers attempt to make up the difference but the exact number of volunteers who will respond to any given emergency is uncertain, especially during working hours.

Funding - At the present time the funding base for the Fire District is inadequate to provide the basic services to the community. No additional manpower may be employed without permission of the County and their present policies are to fund existing levels of service for fire districts based on the level of service existing in 1978 (B-2).

Fire Hazard Areas - Fire hazard areas in older sections of Barstow are typical of Southern California communities; combustible construction, zero clearances for exposures (common wall construction), older electrical and utility systems are common throughout downtown Barstow from Avenue H to Muriel Street along Main Street and adjacent side streets. The probability of a major fire in the downtown area remains high if strong winds are present to help spread fire from one building to another and volunteer manpower is not readily available due to the time of day.

### 5.3 Medical Facilities

Medical service is provided to the residents by the Barstow Community Hospital. The Barstow Community Hospital, located in the center of town between Main Street and Interstate 15, is owned by the City of Barstow and the City Council acts as the Board of Directors. The hospital has approximately 56 beds. The medical staff offers numerous specialties including cardiology, internal medicine, obstetrics, and radiology. The emergency room is staffed 24 hours a day, seven days a week by specially trained personnel.





## 6.0 Summary

The City of Barstow Community Policy Plan was prepared in 1986 for the express purpose of identifying major issues facing the City at that time. After issues were identified, specific policies were formulated to address those concerns identified in the Community Policy Plan. Those issues relating to hazards facing the City are identified below.

The Goals, Policies and Implementation Measures presented in the Hazards Element (pages H-14 through H-18) were developed specifically to address the following issues.

### 6.1 Issues Concerning Community Hazards

1. How should the City regulate development in areas subject to natural or "man-made" hazards?
2. What type of additional medical or health facilities and services should be provided?
3. How may the City ameliorate various problems related to windblown sand?
4. How can the City better coordinate the development of public services and facilities with other public agencies?
5. Are there any major deficiencies in terms of governmental services that should be upgraded?





## 7.0 References

### 7.1 Literature

1. Bulletin No. 106.1, California Department of Water Resources, June, 1964.
2. California Geology, November, 1971.
3. "Sand Blow Study," Barstow, October, 1973.
4. Flood Insurance Study, City of Barstow California, Federal Emergency Management Agency, August, 1979.
5. "Seismic and Safety Elements", City of Barstow General Plan, January, 1976.
6. Soil Survey of San Bernardino County, California, Mojave River Area, USDA, 1978.

### 7.2 Persons/Organizations

7. Mr. Ziegler, Director of Public Services, City of Barstow
8. Chief David Mathews, Barstow Fire Department



**CULTURAL AND RECREATIONAL  
RESOURCES ELEMENT**





## **V. CULTURAL RESOURCES AND RECREATION ELEMENT**

### **A. State Requirements**

State of California, Government Code Section 65303, contains provisions of the inclusion of General Plan elements which address recreational areas and sites, historic preservation, and factors relative to the cultural enhancement of the community. This element addresses issues which encourage and contribute to the physical and social health of Barstow. These include promoting the communities recreational and cultural assets, such as parks, historic buildings and sites, libraries, etc.

Many of the key recreational and cultural resources within the City are not under the City's direct control: e.g., schools by the Barstow Unified School District, Silver Valley Unified School District, and Barstow College; parks and recreational facilities by the Barstow Park and Recreation District; library as a branch of the San Bernardino County Library System; as well as the museum run by the non-profit Mojave River Valley Museum Association and the Senior Citizen's Center by the non-profit Mojave Valley Senior Citizens Club.

### **B. Issues and Opportunities**

A comprehensive description of existing cultural resources (i.e., historic, archaeologic and paleontological resources), and recreational resources is found in the Cultural Resources and Recreation Element Technical Report.

Existing park facilities were found to adequately serve community needs, based on commonly used National Recreational and Parks Association standards. In addition, the Parks District provides an extensive recreation program. Future residential development in areas currently undeveloped may require additional park facilities and an expansion of recreational programs if present levels of service and standards are to be maintained.

Key issues include:

- The integration of natural features and open space with urban development.
- Use of the Mojave River basin.
- Provision of additional recreational opportunities for all citizens of Barstow.
- Increased recreational facilities for tourists.
- Preservation of archaeological and historic sites and buildings.
- Identification of additional funding sources for cultural facilities and activities.





### **C. Open Space/Recreational and Cultural Facilities Plan**

The Land Use Policy Map, Figure CD-1 delineates existing and proposed park, open space, and cultural resource preserve areas. These sites correspond to the open space/recreation designation areas shown on the Land Use Policy Map. Specific improvements and upgrading plans for specific facilities are the responsibility of the various agencies and special districts which provide given services. The role of the City of Barstow is to help identify future needs.



## D. Objectives and Policies

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Objective 1.0 - Integrate various natural features and open space with other urban developments.

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- Policy 1.1 - Open space should not only provide opportunities for leisure-time activities, but contribute to the overall beautification and environmental quality of the community.
- Policy 1.2 - Open space lands within and adjacent to the community should provide a means of tying together various recreational, scenic or cultural features (i.e., parks, trails, historical landmarks, hilltop vistas, parkways and golf courses, community centers, schools, etc.).
- Policy 1.3 - Various open space areas should serve to reinforce community scale and identity - providing a transition or buffer between varying land uses, establishing a continuous greenbelt corridor between open space uses and major community activities, and achieving a sense of openness as an integral part of the surrounding desert environment.
- Policy 1.4 - Interim open space areas shall also be considered as a means of directing the timing and pattern of future development so as to limit any indiscriminate or premature development.
- Policy 1.5 - Monolithic subdivisions shall not be allowed to destroy public access or use of the Mojave Basin. Greenbelt areas adjacent to the River are recommended to ensure maximum utilization and contact with such potential open space.

### Implementation

- Measure 1.1 - The Mojave River Basin has been neglected as a major potential open space and recreational resource. The Rivershed should be utilized for flood control, off-road vehicle use and equestrian facilities.

### Implementation

- Measure 1.2 - While there are a number of neighborhood parks proposed in several locations throughout the City, there is likely to be a shortage of space within the downtown area, where densities will be the greatest and the need for relief most pronounced. The City shall investigate the need and feasibility of establishing smaller vest pocket parks and open space plazas within the downtown area to break up continuous commercial development and provide more amenable space for rest and relaxation.



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**Objective 2.0 - Provide recreational opportunities for all age groups.**

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- Policy 2.1 - Various local or neighborhood parks shall be designed and improved so as to meet the specific needs of existing and future residents within the area to be served. Priority consideration should be given to developing facilities that will encourage the active recreational use of parks.
- Policy 2.2 - The City shall encourage the retention of all publicly owned lands - local, county, state and federal - for recreational purposes as appropriate.
- Policy 2.3 - Parks District should initiate efforts to provide tourist-oriented recreational facilities that not only encourage more tourists to spend time in Barstow, but facilities that can also serve the recreational needs of Barstow residents as well.
- Policy 2.4 - A variety of innovative and non-traditional concepts shall be explored for the use and design of parks such as historical-theme parks (e.g., a park in conjunction with the Harvey House) or a nature center and preserve.
- Policy 2.5 - The City encourages the development of private or quasi-public recreational facilities such as golf courses, private campgrounds, bowling alleys, equestrian centers, rodeo facilities, etc.
- Policy 2.6 - The Parks District should evaluate what types of specialty recreational facilities should be developed including alternative means to provide these facilities. Specific consideration should be given to the following:
- (a) A golf course,
  - (b) Sports Complex,
  - (c) Equestrian Center,
  - (d) Additional, lighted tennis facilities,
  - (e) Bicycle trails,
  - (f) Moto-cross facilities,
  - (g) Overnight camping facilities,
  - (h) Baseball fields,



- (i) Dance facilities (for all ages and interests),
- (j) A youth center,
- (k) Outdoor amphitheater,
- (l) Community fine-arts theatre,
- (m) Crafts center, and
- (n) Racquet ball facilities

Implementation

Measure 2.1- Interconnecting areas for pedestrian, equestrian and bicycle trails should be provided throughout the City. The equestrian trail system, in particular, shall make it feasible to have continuous passage from areas of the City zoned for commercial stables and private ownership of horses to all other parts of the system.

Policy 2.7 - The Barstow area shall strive for local autonomous control of public facilities and services.

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**Objective 3.0 - Active City support for cultural facilities and activities.**

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Policy 3.1 - A "needs assessment" should be made, either through surveys or public forums, to determine what types of cultural activities are actually desired by the community, including the willingness of the citizenry to pay for these activities.

Implementation

Measure 3.1 - The City shall assess what facilities are available for cultural activities and should assist where possible in providing facilities or locating alternatives sites. General criteria for City efforts are:

- (a) Encourage the design and development within the community of low cost exhibit areas and/or performance facilities for a broad spectrum of arts and theatre;
- (b) A cultural commission should be formed to act as a catalyst to coordinate efforts of the City, Community College, School District, Parks District and private groups to expand the cultural opportunities in Barstow;





(c) Financial support should include the consideration of:

user fees;

private donations;

federal, state or county grants;

special property tax; and

bond issues.



Cultural and Recreational  
Resources Element  
Technical Report





CITY OF BARSTOW GENERAL PLAN

Cultural and Recreational Resources Element  
Technical Report

July, 1987

Cotton/Beland/Associates  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104

#424





## Cultural and Recreational Resource Element Technical Report

### 1.0 Introduction

The area within and surrounding the City of Barstow is rich in paleontological, archaeological, and historic resources. In addition, the abundant open space provides recreational opportunities that are unique to the desert areas of Southern California. All of the aforementioned resources have a common trait in that they are sensitive to man's activities and are difficult, if not impossible, to restore once disturbed.

This technical report contains technical information related to cultural resources and recreational facilities within the City of Barstow and surrounding unincorporated areas that are included in the City's sphere of influence. This report serves as the "technical appendix" to the City of Barstow Cultural and Recreational Element and focuses on two primary issue areas.

The first issue area addresses the paleontological, archaeological, historic and other cultural resources within the planning area. The recreational resources are addressed in the second major issue area of this report. This includes an inventory of existing recreational facilities and a needs assessment for the population served by the facilities.



## 2.0 Cultural Resources

### 2.1 Historic Resources

The Barstow area was visited by Indians as evidenced by petroglyphs, pictographs, and artifacts that have been found in the area. Permanent settlement in historic times coincided with the introduction of the railroad into the region though the beginnings of the city can be traced back to earlier mining activity.

In 1880, Robert Waterman established the Waterman Mine, located about four miles north of the city. The area around the mine lacked water so Waterman purchased a section of land on the north bank of the Mojave River. A mill and eventually, a townsite was established on this land. Six years after its founding, the city's name was changed to Barstow, in honor of William Barstow Strong, then president of Santa Fe Railroad.

The first trains began operating on the newly completed railway in 1885 which served as the primary catalyst for Barstow's early growth. The City's growth in subsequent years was directly related to the vitality and growth of the Santa Fe Railroad.

The city continued to grow in the years following World War I though the city's economic base was still dependent, to a large extent, on the railroad. During the Second World War, new industry located in Barstow attracted many new residents to the community.

Barstow's history can be traced to the late 1800s in conjunction with the Santa Fe Railroad expansion as well as mining activity that was occurring at the time. Although old buildings still exist within the city limits, only one is listed on the National Register of Historic Places. This is the Harvey House "Casa de Desierto", Barstow's train station, located in the center of the City.

Ten miles northeast of Barstow is Calico Ghost Town--a silvermining town founded in 1881. In 1960, its restoration was begun by Walter Knott. It is now owned by San Bernardino County and operated by the Regional Park District. It contains authentic restorations of buildings and activities of the popular silvermining era of the late 1900s, when up to 4,000 residents populated the town. Now it is a popular sight-seeing spot for travelers and tourists and contains a 45-space campground adjacent to the town.



## 2.2 Archeological Resources

The current prehistoric chronological sequence for the western Mojave Desert has undergone only minor alterations since it was first developed by W. J. Wallace for the entire Southern California desert region in 1962. This chronology includes major divisions beginning at the close of the Pleistocene epoch and continues to contact between the Spanish and Indians. E. G. Stickel and L. J. Weinman-Roberts prepared an overview of the western Mojave chronology in 1980, in which artifacts that are typical for each period are described. The L. J. Weinman-Roberts study is valuable in that the artifacts described in the chronology serve as "time markers" for each cultural period. The chronological sequence for the Southern California desert region is described below.

Early Systems Period (50,000?-10,000 B.P.) - This period marks the beginning of human occupancy of the Western Hemisphere and corresponds with the late Pleistocene. Sites from this period located in the vicinity of Barstow include those found on ancient lake terraces within Death Valley, Panamint Valley and Coyote Wells. Other occupations have been reported at Coyote Gulch near Hinkley, Manix Lake, and within the Calico Mountains.

The Calico site is the most renowned in this time series and was selected for excavation by Louis Leaky. Dr. Leaky and others felt the artifacts excavated from the site provided evidence of early human occupancy in North America though there is considerable debate as to whether excavated materials are actually man-made.

Mojave I Period (10,000 B.P.-4000 B.P.) - This cultural period marked the end of the cool, moist climate of the Pleistocene to a period where warmer and drier conditions prevailed, resulting in significant environmental change.

Mojave II Period (4000 B.P.-1200 B.C.) - The climatic trends for a warmer and drier climate continued and it was during this period that the Pleistocene lakes dried up. Societies during this period were hunters and gatherers using the earliest types of stone tools.

Amargosa I Period (1200 B.C.-A.D. 600) - The climate stabilized with environmental conditions, overall, approximating existing conditions. The inhabitants of the region during this period developed a variety of stone tools and projectile points.

The most significant archaeological site from this period is Newberry Cave, approximately 13 miles east of Daggett. The cave consists of four rooms that were vandalized prior to discovery by archaeologists. The most interesting feature of this site concerns the colorful pictographs which cover the exterior walls just outside the cave entrances. Artifacts found at this site include projectile points, scrapers, a chopper and ground stone tools.





Amargosa II Period (A.D. 600-1300) - The evolution of projectile points and stone tools continued while ceramic technology first appears during this period. In addition there is evidence of widespread contact with other cultures over a wide geographic area.

Protohistoric - Historic Mojave Period (A.D. 1300-Contact) - Small triangular-shaped arrowheads, pottery, blades, basketry and wooden items are among the many artifacts representative of this period.

There are several petroglyph sites in and around Barstow worthy of note. One location is Buzzard Rock, located across the Mojave River from the Harvey House. This site, vandalized and in need of protection, is eligible to be placed on the National Register. Two additional petroglyph sites are within thirty-six miles of Barstow; the Rodman Mountain Petroglyph Site to the southeast, and the Inscription Canyon Petroglyph Site to the north. Both of these sites have also been heavily vandalized (Ref. 1).

## **2.3 Paleontological Resources**

Much of the desert region of eastern and southern California was covered by lakes during the Pleistocene. The existence of an extensive system of interconnected lakes indicate the region had a more temperate and moist climate in recent geologic history. This climate, coupled with the abundant moisture, could support a wide range of plant and animal species that eventually became extinct due to their inability to adapt to the gradual change in climate. This change in climate is referred to as the "altithermal" and resulted in increasingly warmer air temperature and less rainfall. The altithermal resulted in an eventual "drying-up" of the many lakes and rivers in the region during the latter stages of the Pleistocene.

Evidence of a Pleistocene lake along the Mojave River was first established early this century when well-exposed ancient lake deposits were discovered along the river canyon near Manix, about 30 miles east of Barstow. Numerous vertebrate fossils, including eleven varieties of birds, were discovered in the lake bed or "lacustrine" deposits. Manix Lake, at its peak, covered an area of between 200 to 300 square miles and was approximately 200 feet deep (Ref. 2).





### 3.0 Recreational Resources

The Barstow Parks and Recreation District is responsible for park and facilities planning, development, and maintenance within a 510 square mile region. The area includes the incorporated City of Barstow, along with Barstow Heights, Lenwood, Hodge, Grandview, Skyline North, Skyline East, and Fort Irwin Estates. The District provides a wide range of facilities and promotes an equally varied range of programs (Ref. 4).

In addition to those district facilities, there are other outdoor facilities and programs in the immediate area. The Barstow Unified School District has its own school facilities and programs. There is also a privately owned, nine-hole golf course at the west side of town.

#### 3.1 Existing Facilities

The existing facilities and their acreages are listed in Table CR-1. The 101.8 acres of recreational open space provide for a wide range of activities from swimming to soccer. No new facilities are planned for by the Parks District. Figure CR-1 shows the location of the existing parks.

The Barstow Parks and Recreation District has prepared a long-range park facilities master plan, which was recently updated in 1984. This report entitled General Plan of Parks provides a description of existing and proposed park facilities. This master plan established a hierarchical classification of parks which is described below. For purposes of analysis, the school sites which are not leased by the Parks and Recreation District will be considered separately in this report from the other facilities due to limitations associated with their use by the general public.

Neighborhood Parks - These facilities are designed to serve the open space needs of the individual neighborhoods. A neighborhood park should generally be four to seven acres in size though the NRPA standards allow for a minimum area of 2.5 acres for such facilities. The typical facilities considered for these parks include a children's play apparatus area, multi-purpose game courts and picnic facilities. The recommended service radius for these facilities is three-quarters of a mile.

Community Parks - Parks in this category are specially designed and planned to serve the recreational needs of several neighborhoods. Community parks provide a broader range of options and facilities than local parks, such as larger playground areas, picnic areas and indoor community buildings. A community park should generally be at least ten acres in size.

Special Facilities - This category refers to those facilities generally used as centers for a wide spectrum of special interest use. They include civic auditoriums, golf courses, community buildings, and swimming pools including a community center, an athletic field, and a museum.



TABLE: CTR-1

## Existing Park Facilities of the Barstow Parks and Recreation District

Park Category	Park Name	Acreage	Facilities
Play Lots/Mini Parks	Waterman Park	0.6	Playground equipment, picnic area
	Barstow Heights	0.8	Picnic area, playground
Neighborhood Parks	Lenwood Park <sup>1</sup>	2.5	Playground, athletic field
	Skyline Park North <sup>1</sup>	7.3	Playground, picnic area, athletic fields
	John Sturnacle Park	10.4	Playground, picnic area, baseball field, basketball
	Lillian Park	3.7	Picnic area, baseball field
	Jasper Park	2.0	Picnic area, playground equipment, basketball court
	Stringham Park <sup>1</sup>	5.0	Picnic area, baseball fields
Community Parks	Fogelsong Park	35.0	Playground area, athletic field, pool area, picnic area
	Dana Park	8.8	Playground, indoor pool, tennis courts
Special Facilities	Al Vigil Community Swim Center	(Part of Dana Park)	
	Henderson Pool	(Part of Fogelsong Park)	
	"H" Street Soccerfields	15.0	
	District Lighted Ballfield	8.0	Baseball field, restrooms, picnic area
	Centennial Display Park	(Part of Dana Park)	
	Museum	0.7	
	Community Center	2.0	

<sup>1</sup> Leased from Barstow Unified School District.

Source: Barstow Park and Recreation District



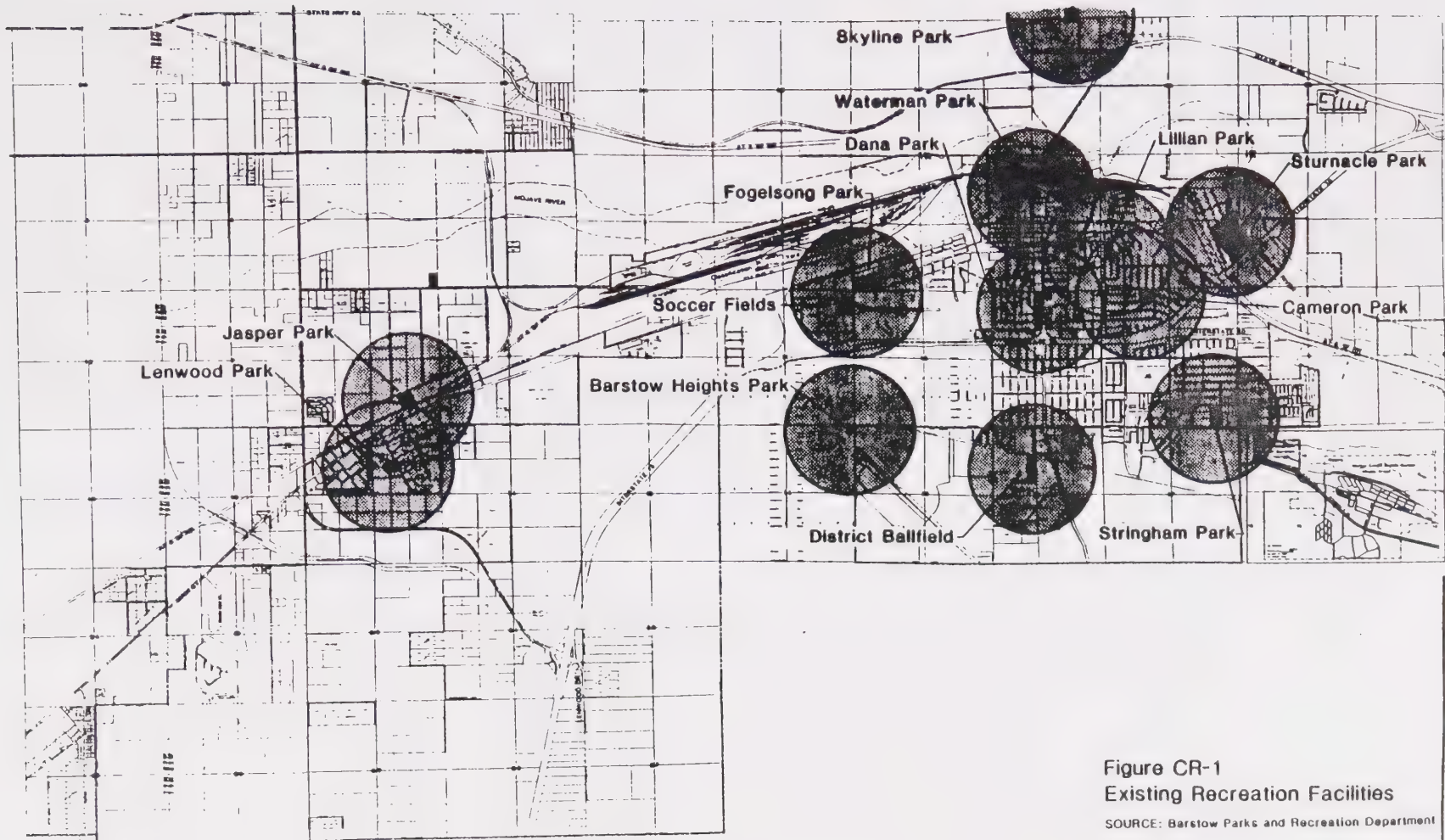
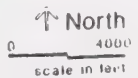


Figure CR-1  
Existing Recreation Facilities

SOURCE: Barstow Parks and Recreation Department







The existing recreational facilities are described in Table C-1 which identified the functional classification, total area, and available facilities at each park.

### 3.2 Park Needs Assessment

The existing park facilities either located within or providing service to the planning area total 101.8 acres. This acreage includes the total land area included in the ten parks operated by the Barstow Park and Recreation District. Also included in this total are 25.7 acres devoted to more specialized recreational uses.

The National Recreation and Parks Association (NRPA) recommends at least 2.5 acres of parkland per 1,000 residents (Ref. 3). The District maintains four facilities located outside the incorporated limits of the city: Lenwood Park, Jasper Park, Skyline Park, and Barstow Heights Park. The remaining 89.2 acres of parks and specialized facilities are located within the incorporated boundaries of the city.

Based on the City's current population, which is estimated by the State Department of Finance to be 19,518, at least 48.8 acres are required to meet the minimum NRPA standards. The city presently exceeds the recommended NRPA Standards by 40.4 acres. The existing facilities within the city provide approximately 4.6 acres per 1,000 persons.

There are numerous other standards in use to identify park facility deficiencies. The most common criteria involves the identification of service areas for existing facilities and noting those areas that are not well served. The service areas for the existing park facilities are mapped in Figure C-1 which assumes that each facility, regardless of functional classification, has a service area with a one-half mile radius. Examination of Figure C-1 reveals that the substantial portion of the city is well served by the existing facilities. Only a single residential neighborhood in the South Barstow Planning Area is not included in a park service area though a junior high school is located in the neighborhood.

Existing park facilities adequately serve the needs of the planning area based on the most commonly used standards. Future residential development in areas currently undeveloped may require additional standards if the existing levels of service and availability are to be maintained.





#### 4.0 Summary

The City of Barstow Community Policy Plan was prepared in 1986 for the express purpose of identifying major issues facing the City at that time. After issues were identified, specific policies were formulated to address those concerns identified in the Community Policy Plan. Those issues relating to actual and recreational resources are identified below.

#### 4.1 Cultural and Recreational Issues

1. What types of cultural facilities and activities should the City support?
2. What can be done to improve educational opportunities within the Barstow area?
3. What can be done to provide recreational opportunities for all age groups?



## 5.0 References

1. Larry Seaman Associates, Cultural Resource Survey of Bear Valley Road Redevelopment Project Study Area, Victorville, San Bernardino County, California, 1981.
2. Blanc, Robert P. and George B. Cleveland. "Pleistocene Lakes of Southeastern California," Mineral Information Service, State of California, Division of Mines, V. 14, No. 4, April, 1961.
3. National Parks and Recreation Association, Recreation Park and Open Space Standards and Guidelines, National Recreation Park Association, 1983.
4. Haworth, Anderson, Lafer, Open Space and Conservation Elements, City of Barstow General Plan, 1976.
5. Meserve, David B., Barstow Park and Recreation District: Annual Report, City of Barstow, 1986.



# INFRASTRUCTURE ELEMENT





## **VI. INFRASTRUCTURE ELEMENT**

### **A. Introduction**

The Infrastructure Element contains the City's goals for the streets and parking, storm drainage, sewer and water systems and public services that will be necessary to support the development envisioned by the Land Use Policy Map of this General Plan in a safe and efficient fashion. This element will serve as a guide for public improvements as they relate to the long-range growth process in the City of Barstow.

The State law requires that every general plan contain a circulation element. This element must contain, at a minimum, the "general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other public utilities and facilities, all correlated with the land use element of the general plan" (Section 653002(b)). The General Plan Guidelines identify certain features that may be important to the community. Those items mentioned in the General Plan Guidelines that are of particular concern to the City of Barstow include:

- °Streets and highways;
- °Parking facilities;
- °Truck traffic;
- °Bicycle and pedestrian facilities;
- °Alternative transit modes;
- °Utilities transmission facilities; and
- °Oil and gas pipelines.

The Infrastructure Element serves to fulfill State requirements for a circulation element (Section 65302). In addition, the Infrastructure Element is concerned with the continued maintenance and expansion of the sewer system, water system, and utilities to meet the future need of the City. The Infrastructure Element is structured so that General Plan policies and goals related to circulation are considered separately from those related to other public facilities.

### **B. Circulation**

#### **1. Traffic Implications of Land Use Policy**

The 1986 population in the City of Barstow is 19,520. This represents an overall increase of 18%, or an annual growth of 1.2%, over the 1972 population of 16,950 (1972 being the base year for the Barstow Transportation Study (BTS)). The population has fluctuated up and down during that 15-year period; however, during the last five years there has been a steady increase in population with annual growth of 2.3%, 3.0%, 2.4%, 2.3%, and 1.8%.

The maximum population which could be anticipated by the year 2000 would be 35,000. To reach this level the City would have to experience an annual growth rate of 3.0% during the next 13 years. Based on the historical data,





this level of increase seems unlikely, but can be used as a conservative maximum. The 35,000 population represents a 50% increase over the 1986 population, and a 77% increase over the 1972 population.

Based on the draft General Plan Land Use Element, the City could ultimately contain 22,770 residential units. This represents an increase of 190% over the existing level of 7,830 dwelling units. Since the maximum projected growth by the year 2000 is only 50%, ultimate buildout could not even be approached until well into the 21st century. Because the level of development associated with general plan buildout occurs so far into the future, the traffic analysis is limited to a 15-20 year horizon.

The BTS prepared an analysis of projected traffic conditions for 1995. That analysis was based on assumed population growth of 84% between 1972 and 1995. Review of the growth assumptions used in that study indicate that the BTS traffic analysis is still generally applicable for evaluating traffic conditions for the year 2000 or 2005. Several factors support this conclusion:

- ° The actual population increase from 1972-1986 was only 18%.
- ° The maximum projected growth by the year 2000 represents a 77% increase over 1972.
- ° The growth projections in the BTS are essentially similar to the development patterns in the draft General Plan:
  - the area south of I-15 would experience the greatest increase in housing;
  - retail uses would continue to be concentrated along Main Street; and
  - industrial uses would expand significantly in the Lenwood area.

Historical data and projections from the BTS can be used to determine the relationship of traffic growth to population growth in Barstow. The table below shows the observed growth in traffic volumes at selected locations between 1972 and 1986; it also shows the growth projected at these locations in the BTS between 1972 and 1995.



TABLE IN-1  
TRAFFIC VOLUMES OF SELECTED LOCATIONS

Location	Actual Traffic Volume Growth 1972-1986	Projected Traffic Volume Growth 1972-1995
I-15 east of Lenwood Road	+20%	+139%
I-15 west of Barstow Road	+60%	+189%
I-15 east of Main Street (east)	+37%	+111%
Main Street west of I-15 (west)	+118%	+129%
Main Street east of First Avenue	+23%	+44%
First Avenue north of Main Street	+72%	+172%
I-40 east of I-15	+8%	+121%
Montara Road south of I-40	+15%	+48%
Rimrock Road east of Barstow Road	+150%	+221%
Mountain View Avenue east of Barstow Road	+12%	+31%

The main observation to be drawn from these data is that the relative growth in traffic volumes is greater than the population increase. From 1972-1986, the population growth was 18%, in some cases substantially greater. Therefore, it can be expected that if the population reaches 35,000 by the year 2000, travel demands will increase by more than 50%.

The analysis of existing traffic volumes and levels of service indicated only two streets with the potential for traffic problems: Main Street in downtown Barstow, and Barstow Road. In the future, these streets will continue to provide a vital circulation function for the City for several reasons:

- ° these streets provide the only direct access from the I-15 freeway to the City's main commercial and office/administrative areas:
- ° the City desires to encourage and further concentrate future commercial development along Main Street, particularly in the downtown area;
- ° the concentration of future office and administrative uses will occur adjacent to Barstow Road; and
- ° possible alternate routes to Main Street and Barstow Road do not have freeway access, traverse residential areas, or are not sufficiently convenient to be considered as likely alternates.

These factors indicate that Main Street and Barstow Road should continue to be the key arterial access routes for the north/central part of Barstow. However, both streets are closely abutted by adjacent land uses, so they cannot be widened.

With the exception of Main Street and Barstow Road, the Circulation Master Plan will provide sufficient traffic capacity for the foreseeable future. To minimize congestion on those two arterials, steps should be taken to provide alternate routes for local traffic which does not need to use these arterials, and to maximize the traffic capacity of the existing streets. The following measures are recommended:



- ° Eliminate on-street parking from Main Street and provide left turn lanes (either a continuous two-way left turn lane, or left turn lanes at intersections, as local conditions warrant). On-street parking should only be eliminated after it has been determined that sufficient nearby off-street parking exists to replace the spaces being removed.
- ° Develop alternate parallel routes for local traffic, as shown on the Circulation Master Plan. Routes to be considered should include the westerly extension of Virginia Way, and the southerly extension of Avenue "A".
- ° Street rights-of-way should be maintained in accordance with those shown on the Circulation Master Plan. If the existing right-of-way is less than that shown on the Master Plan, the necessary additional right-of-way should be dedicated when adjacent properties are developed or redeveloped.

## 2. Master Plan of Streets

The proposed circulation plan for the City of Barstow is illustrated in Figure IN-1. The figure indicates the system of streets and highways for the City indicating the different levels of roadways from local to major arterials and State highways. The plan is based on the recommendation that the existing hierarchy of streets is maintained. The following provides a description of each component of this hierarchy:

Freeway - A major traffic expressway established by the State Transportation Commission, characterized by limited access, no grade crossings, physical separation of opposing traffic lanes, elimination of direct access to abutting property, and designed for maximum traffic speed and flow. Standards shall be those set by the California Department of Transportation.

Arterial - A major thoroughfare providing for through movement between areas and across the City, and direct access to abutting property; subject to necessary control of entrances, exits, and curb uses. Arterials or major thoroughfares shall be not less than 100 feet wide right-of-way and contain no fewer than four 12-foot traffic lanes and two 8-foot parking lanes.

Collector - A street which serves an area or neighborhood as a distributor of vehicle traffic by being fed by local streets and delivering the traffic to a major artery. These secondary thoroughfares should be at least 80 feet wide right-of-way and contain at least four 12-foot traffic lanes and two 8-foot parking lanes.

Local Street - Streets which are designed to serve a residential area and which are local in character. Ideally to protect residential integrity, a local street prohibits through traffic by cul-de-sac, curves, and T-intersections. The right of way for these streets should be 60 feet, and each should contain not less than two 12-foot traffic lanes and two 8-foot parking lanes.





The recommended standards for streets and highways are established by City of Barstow Municipal Code. These standards are appropriate for new construction; however, many streets in the City were not originally developed to these standards.

### **C. Utility Systems**

The technical report, which accompanies this element, contains a comprehensive overview of utility and related service systems. Background data, as well as growth projections, including system wide maps are contained in this report.

The following section of this element identifies specific goal and policy statements pertaining to utility and service systems.





#### D. Infrastructure Goals, Policies, and Objectives

**GOAL: PROVIDE A BALANCED TRANSPORTATION SYSTEM FOR THE SAFE AND EFFICIENT MOVEMENT OF PEOPLE, GOODS, AND SERVICES THROUGHOUT THE CITY.**

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**Objective 1.0 - Provide a safe and efficient circulation system minimizing the impact of the automobile.**

---

Policy 1.1 - Maintain consistency between the City General Plan Circulation Element and proposed land uses.

Policy 1.2 - Encourage development of necessary arterial and collector streets to ease heavy traffic, particularly to alleviate congestion on Main Street.

Policy 1.3 - Give priority to the maintenance of existing streets.

Policy 1.4 - Actively encourage completion of the rerouting of Route 58.

Policy 1.5 - Place major emphasis on improving existing streets and highways that have high accident rates.

##### Implementation

Measure 1.1 - Do not permit new residential developments to front on major arterial highways.

##### Implementation

Measure 1.2 - Give priority to widening, extending, and/or rerouting streets on the General Plan Circulation Element.

##### Implementation

Measure 1.3 - Analyze future developments to assure that vehicular traffic volumes will not exceed street designs, or cause excessive traffic conflicts or congestion.

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**Objective 2.0 - Initiate efforts to ensure adequate parking in all areas of the community, particularly in the downtown area.**

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Policy 2.1 - Evaluate areas in need of additional parking facilities.

Policy 2.2 - Periodically evaluate and update, as appropriate, parking requirements for new development.



Implementation

- Measure 2.1 - Develop standards for eliminating on-street parking where such parking might create safety hazards or impinge upon needed arterial traffic carrying capacity. On-street parking should not be removed unless adequate and convenient replacement parking is available.

Implementation

- Measure 2.2 - Establish parking design standards for motor homes, trucks, trailers, and motor bikes.

---

Objective 3.0 - Enhance the scenic quality of the Barstow area.

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- Policy 3.1 - Ensure adequate landscaping on both sides of scenic highways where feasible. Place emphasis on the use of native desert flora where feasible.

- Policy 3.2 - Incorporate decorative and appropriate welcome signs near major entryways to the community.

- Policy 3.3 - Landscaping or walls must not restrict views from scenic highways to desert valley areas.

Implementation

- Measure 3.1 - Limit signing along scenic highways to on-site business identification, recreational features, and off-site directional signs for immediate adjacent residential developments.

Implementation

- Measure 3.2 - Ensure that all such signs are placed to blend with the local environment.

Implementation

- Measure 3.3 - Place utilities underground along scenic highways.

Implementation

- Measure 3.4 - Develop specific criteria and standards for building designs, setbacks and landscaping on adjoining properties within the scenic corridor.

Implementation

- Measure 3.5 - Adopt land use control policies along scenic highways and corridors which are consistent with State and County adopted policies.



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**Objective 4.0 - Develop facilities which encourage alternatives to automobile transportation.**

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Policy 4.1 - Separate automobile routes from critical pedestrian, bicycle and equestrian routes either through grade-separations or physical barriers.

Policy 4.2 - For direction and safety, provide adequate signage for pedestrian, bicycle and equestrian route crossings for direction and safety.

Policy 4.3 - Integrate pedestrian, bicycle and equestrian paths into separated open spaces where possible, to avoid conflict with automobile routes.

Implementation

Measure 4.1 - Establish special areas and facilities for off-road vehicles and motorbikes.

Implementation

Measure 4.2 - Provide wheelchair ramps in new curbing and in existing curbing that is rebuilt in public building areas.

Implementation

Measure 4.3 - Phase traffic signals for the safe accommodation of pedestrians, bicyclists, elderly and handicapped persons, etc.



**GOAL: PROVIDE FOR THE ADEQUATE PROVISION AND MAINTENANCE OF PUBLIC UTILITIES AND SERVICES.**

**Water**

---

**Objective 1.0 - Through the cooperation of the Southern California Water Company, insure that Barstow has a water supply system capable of adequately meeting normal demand and emergency demand in the City.**

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**Policy 1.1 - Periodically evaluate the entire water supply and distribution system to ensure its continued adequacy.**

**Policy 1.2 - Ensure that all new development or expansion of existing facilities bears the cost of providing adequate water service to meet the increased demand which it generates.**

**Policy 1.3 - Educate the public in the importance of water conservation and require new development to consider water conservation in the overall design.**

**Implementation**

**Measure 1.1 - Give priority to providing adequate water to existing residents of Barstow.**

**Implementation**

**Measure 1.2 - Initiate and coordinate efforts of a special committee for planning and developing water facilities for the greater Barstow area. Priority should be given to replacing existing asbestos cement pipes.**

**Sewer**

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**Objective 2.0 - Coordinate efforts with other agencies to ensure that all property owners within the Barstow's sphere of influence have adequate sewer and water facilities.**

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**Policy 2.1 - Give priority to providing adequate sewer facilities to existing residents of the City of Barstow.**

**Implementation**

**Measure 2.1 - Initiate a phasing program of continued maintenance and repair for all existing and future sewer facilities.**





## Storm Drainage

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Objective 3.0 - Maintain a storm drainage system adequate to protect the lives and property of Barstow residents.

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### Implementation

Measure 3.1 - Periodically evaluate the size and condition of the storm drainage system to ensure its ability to handle expected storm runoff.

### Implementation

Measure 3.2 - Evaluate the impact of all new development and expansion of existing facilities on storm runoff and ensure that the cost of upgrading existing drainage facilities to handle the additional runoff is paid for by the development which generates it.

## Public Services

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Objective 4.0 - Develop a joint planning and development program (including appropriate City, County, regional and relative agencies) to upgrade the existing level of services and facilities and to avoid duplication of effort.

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Policy 4.1 - Initiate formation of a special committee/commission to plan and develop the joint use and management of public facilities and services within the greater Barstow area.

### Implementation

Measure 4.1 - Develop a comprehensive Capital Improvements Program designed to implement the objectives of the general plan, redevelopment plan, and eliminate major deficiencies in public facilities. The CIP should include a 5-year program.

### Implementation

Measure 4.2 - Review various district boundaries. Determine if these boundaries can be made coterminous to provide mutual aid services.

### Implementation

Measure 4.3 - Clearly delineate responsibility for these capital improvement projects to either the City or the redevelopment agency.



## General Infrastructure

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Objective 5.0 - Establish policy guidelines to prevent extended and improved infrastructure systems from becoming a burden on the City of Barstow.

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Implementation

Measure 5.1 - New development shall provide appropriate dedications, improvements and fees so as not to burden the tax base of the City of Barstow.

Implementation

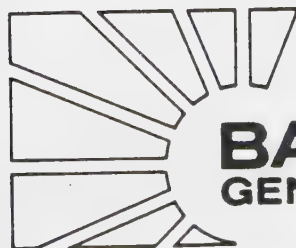
Measure 5.2 - New development projects must provide their own infrastructure, or participate in appropriate funding mechanisms such as assessment districts.

Implementation

Measure 5.3 - Facilities shall be designed and installed to further the health, safety and welfare of the City.



Infrastructure Element  
Technical Report



**BARSTOW**  
GENERAL PLAN



CITY OF BARSTOW GENERAL PLAN

Infrastructure Element Technical Report

July, 1987

Cotton/Beland/Associates, Inc.  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104

#424





## 1.0 Introduction

This report has been prepared as one of the technical background reports to the City of Barstow General Plan Update Study. It covers all topics related to the City's infrastructure system including circulation, wastewater, water supply, hydrology, gas, electricity, and telephone service. Topics included in this background report include documentation of the existing infrastructure system, current plans for future expansion of the system, and key issues to be addressed in the development of future infrastructure.

The report is organized into sections dealing with the individual infrastructure topics. Each section discusses the existing system and usage data pertaining to that topic. The key issues to be addressed for all infrastructure topics are combined in a separate section after the analysis of existing conditions.



## 2.0 Circulation

Existing circulation within the City of Barstow depends primarily upon the use of private vehicles. Public transportation, bicycle and pedestrian circulation play secondary roles in the City's circulation system. The discussion of existing circulation conditions documents the existing roadway system, existing traffic volumes and service levels, and pertinent items related to alternative travel modes.

### 2.1 Roadway System

This section describes the regional and local roadway facilities which presently serve as the primary circulation routes for the City of Barstow. Included are discussions of existing regional highway facilities, the existing arterial street system, and existing and planned roadway facility classifications.

Four state highways provide regional access to and from the City:

- ° I-15 is a four-lane grade-separated freeway through the city of Barstow, which provides regional access to the Los Angeles Basin and San Diego to the southwest, and to Las Vegas and Salt Lake City to the northeast.
- ° I-40 is a four-lane grade-separated freeway which has one terminus at I-15 in the City and provides regional access to the east through the Mojave Desert and northern Arizona.
- ° SR-58 is a two-lane State highway which has one terminus at I-15 to the northeast of Barstow, and provides regional access westerly to the city of Bakersfield. SR-58 presently does not penetrate the City limits of Barstow. The California Department of Transportation's (CalTrans) five-year State Transportation Improvement Program includes rerouting of SR-58 to connect with I-15 at the Main Street interchange west of downtown.
- ° SR-247, Barstow Road, is described on the following page.

The key arterial streets providing circulation in the Barstow area include the following:

- ° Main Street (formerly U.S. Highway 66) is the key east-west arterial through the City. It has two interchanges with I-15; it is fronted by many of the City's commercial and visitor-serving facilities.



- Barstow Road is a key north-south arterial through central Barstow. It has an interchange with I-15 between the two Main Street interchanges. To the north of I-15, Barstow Road provides access into the downtown area; south of I-15, Barstow Road is State Route 247, which connects Barstow with Lucerne Valley to the south.
- First Avenue is a north-south arterial with its southern terminus at Main Street in downtown Barstow; it provides the only existing connection from downtown Barstow northerly across the AT & SF Railroad and Mojave River to SR-58 and Fort Irwin.
- Lenwood Road serves the west end of Barstow; it has an interchange with I-15, intersects Main Street in the unincorporated community of Lenwood, and crosses the Mojave River and the AT & SF railroad to link Lenwood with SR-58.
- Rimrock Road and Armory Road are key east-west arterials located to the south of I-15.
- Muriel Drive is a key north-south arterial located east of Barstow Road. Muriel Drive and Barstow Road are the only two north-south crossings of I-15 in central Barstow.

For the purposes of analysis and evaluation of roadway needs, a roadway classification system has been established for use in this study. This system is more detailed than the classification system contained in the city's Circulation Master Plan because of the need to relate roadway classifications to traffic capacity. Typical cross-section elements associated with each classification are shown in Figure 1. Actual dimensions may vary from street to street, but each street is classified according to the function of its lane configuration. The four roadway classifications are briefly described below:

- A freeway or highway is a regional transportation facility which may or may not be grade-separated from arterial streets.
- A primary arterial is typically a four-lane divided street with parking permitted, or a six-lane divided street without parking.
- A secondary arterial is typically a four-lane undivided street with parking permitted, or a four-lane divided street with no parking.



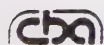
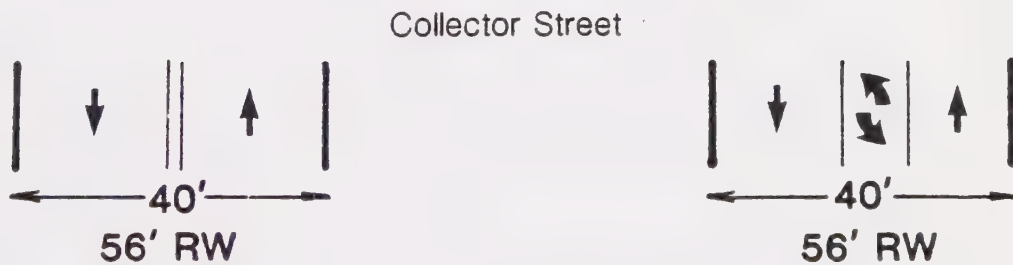
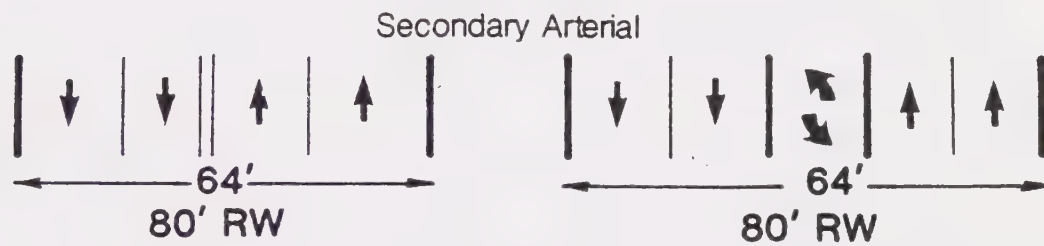
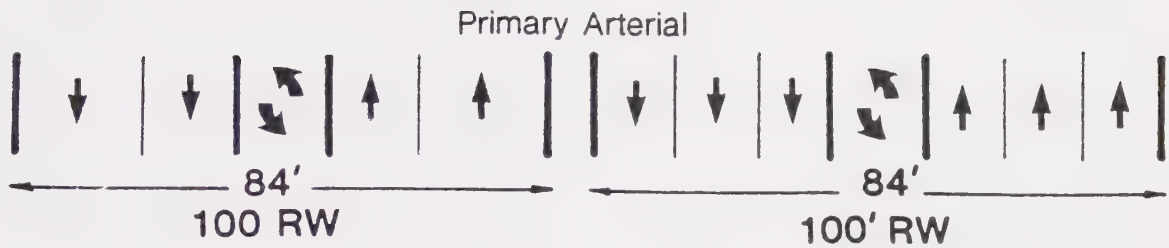


Figure IN-4  
Roadway Classifications





- ° A collector street typically has fewer than four travel lanes, and may or may not include parking, depending on the individual street's capacity needs and cross-section.

The existing roadway classifications are shown in Figure 2. In some cases, portions of a street may be wider than the pavement width associated with its existing classification; the additional width is provided to facilitate future widening to the street's master plan width.

Classifications associated with the city's current Circulation Master Plan are shown in Figure 3.

## 2.2 Existing Usage

Existing average daily traffic (ADT) volumes on the highways and arterial streets in the Barstow area were obtained from the City of Barstow and CalTrans. Available counts were collected in 1984 and 1986. The counts collected in 1984 were increased by an annual growth rate of 2% to estimate 1986 volumes.

The existing ADT volumes are shown in Figure 4. Significant points in the traffic volume analysis are as follows:

- ° I-15 carries approximately 25,000 vehicles per day through Barstow.
- ° I-40 carries 11,000 vehicles per day to the east of Barstow.
- ° Main Street is the most heavily traveled arterial within the city, carrying 24,000 vehicles per day at its heaviest load point.
- ° Barstow Road carries 13,000 vehicles per day north of I-15.
- ° First Avenue carries 13,000 vehicles per day north of Main Street.

To evaluate existing traffic operations within the city, existing ADT volumes were compared with nominal capacity values for each roadway facility. The assumed daily capacities at Level of Service C are shown in Table IN-1. (It should be noted that these capacity values represent a maximum carrying capacity of each facility, unlike the capacity values used in the 1973 Barstow Transportation Study, which "represent maximum traffic volumes which permit reasonably fluid flow.") These are general plan level capacity values, based on a peak hour which is 10% of the ADT volume. As noted in the legend of Figure 4, a street carrying up to



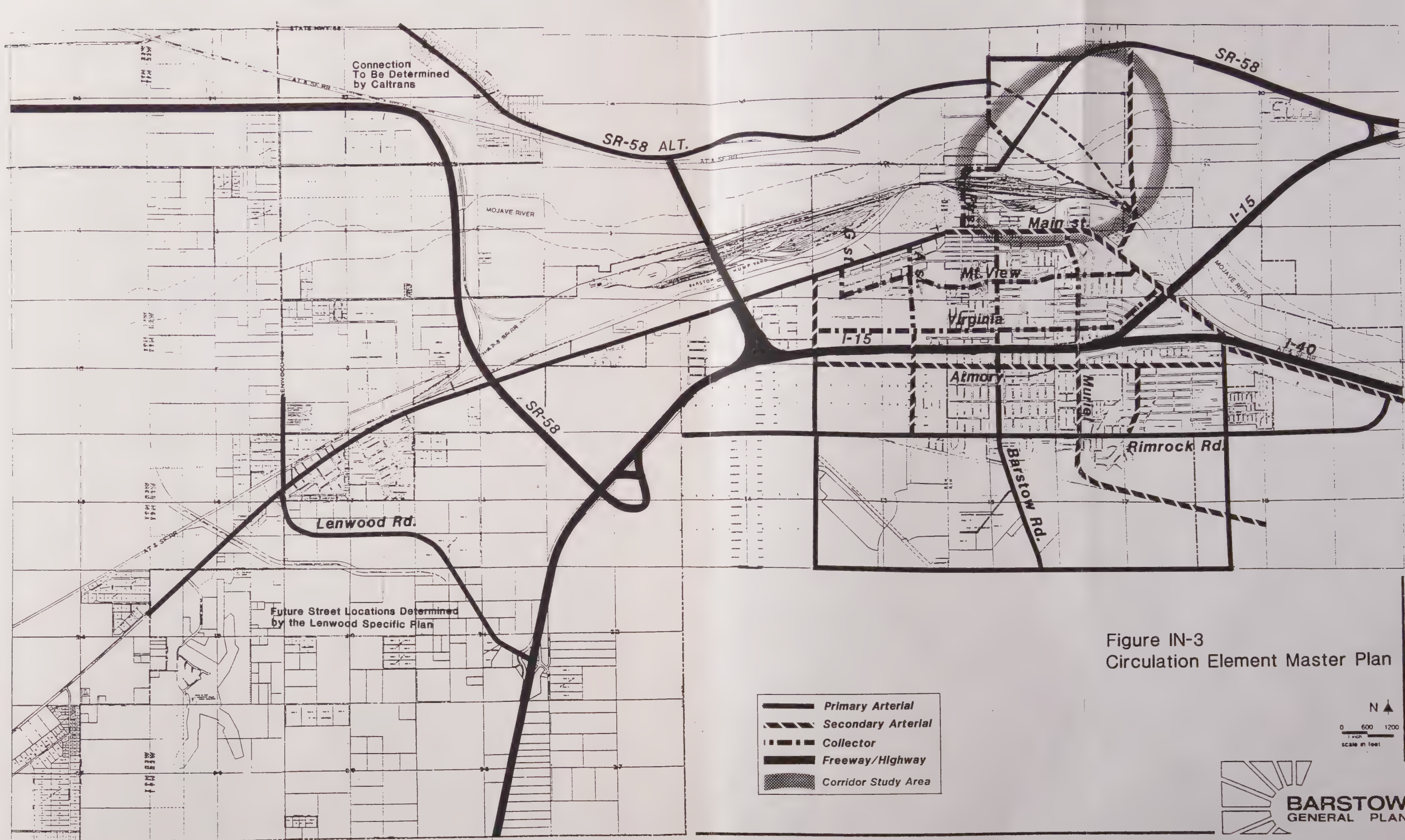


Figure IN-3  
Circulation Element Master Plan





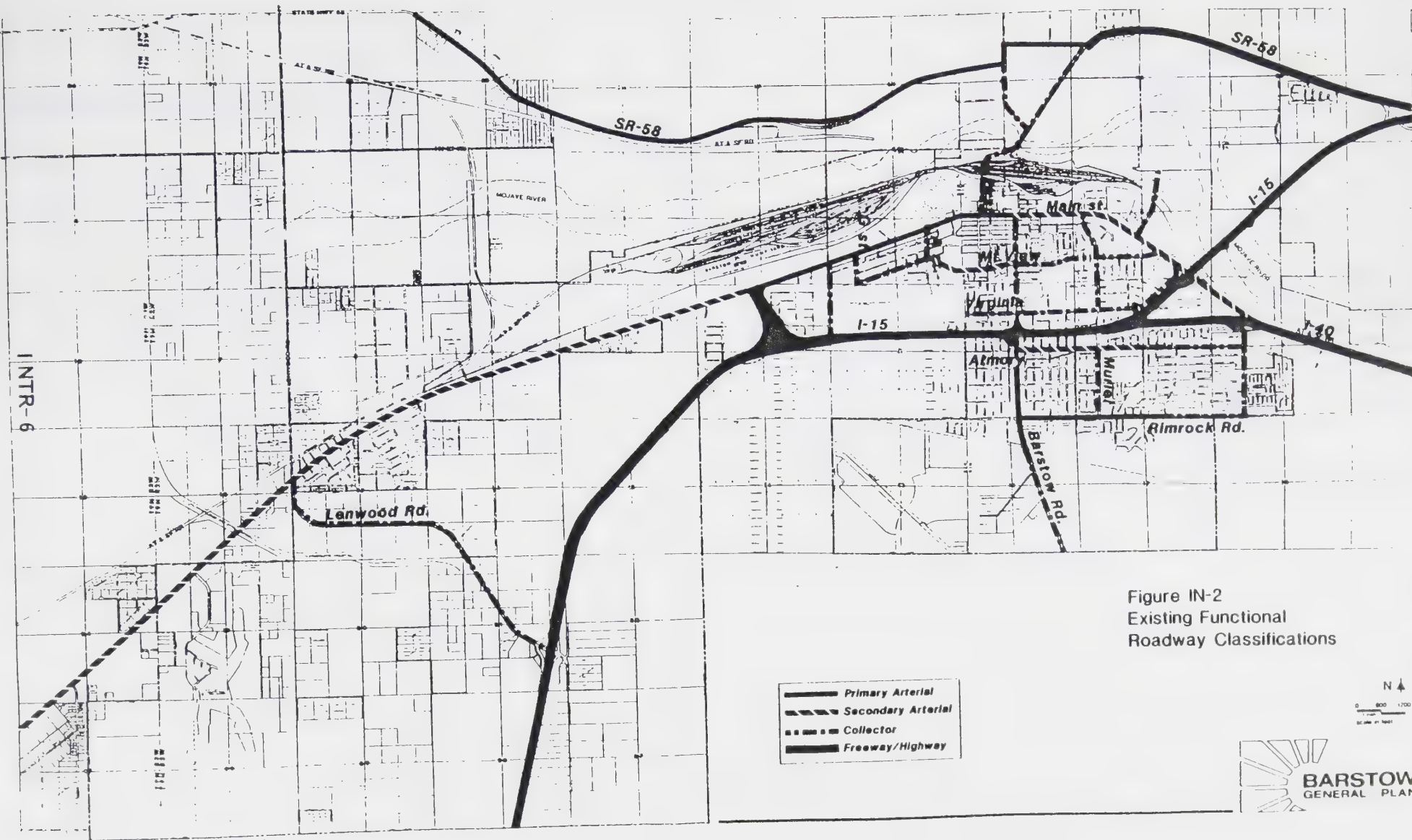
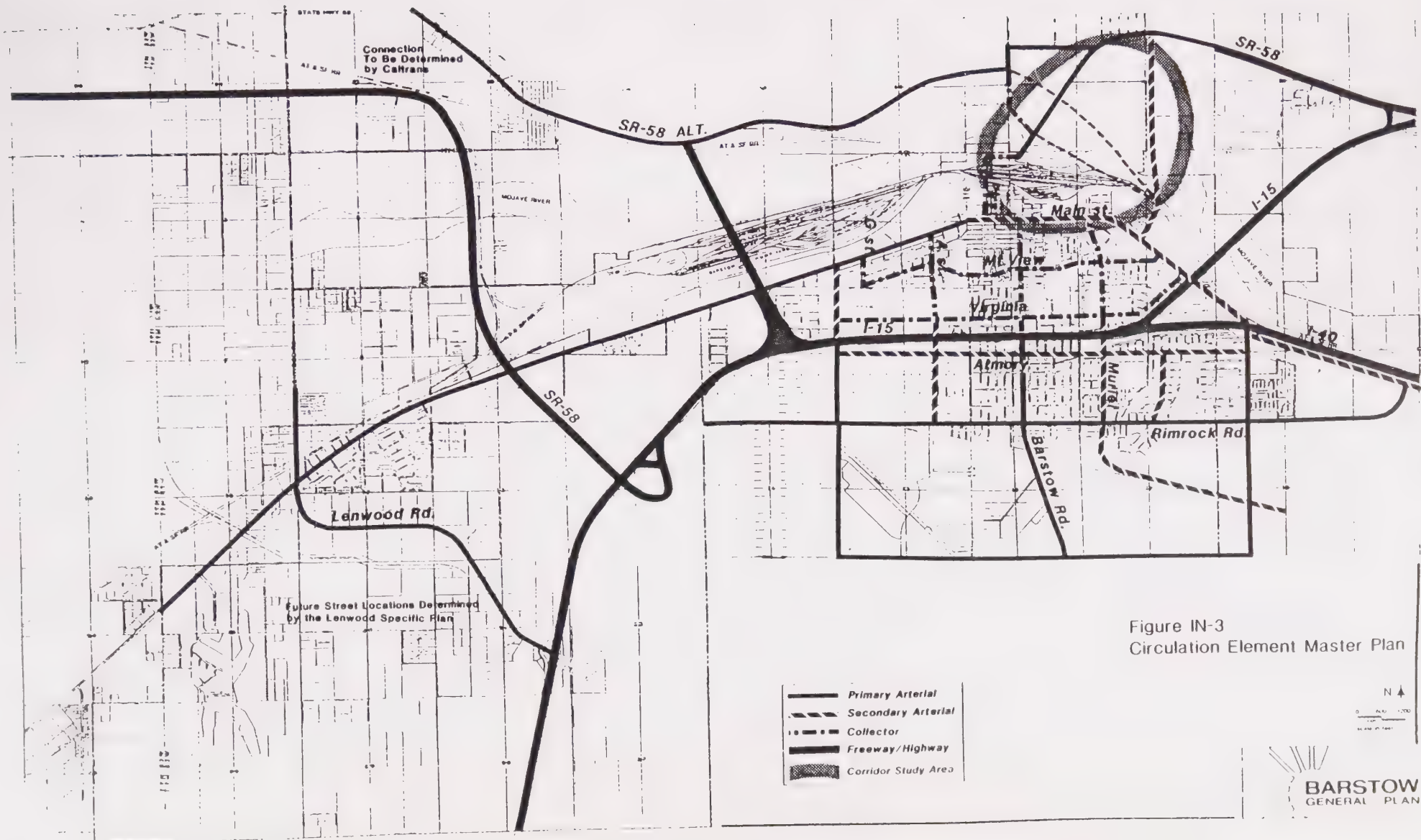


Figure IN-2  
Existing Functional  
Roadway Classifications















60% of its total capacity operates at Level of Service A; 61 to 70% of capacity is Level of Service B; 71 to 80% of capacity is Level of Service C; 81 to 90% of capacity is Level of Service D; 91 to 100% of capacity is Level of Service E; and greater than 100% of capacity is Level of Service F. These levels of service, as applied to ADT volumes, represent approximate peak hour level of service at signalized intersections of streets with these lane configurations. A number of factors (including the number and configuration of street intersections, access control, design geometrics, truck traffic and pedestrian volumes) affect the actual peak hour level of service at intersections. For a general plan level analysis, the ADT capacity values provide a reasonable estimate of level of service along individual streets.

**TABLE INTR-1  
ASSUMED CAPACITY VALUES**

Roadway Type	Capacity (Vehicles per day)
4-lane freeway	80,000
4-lane divided arterial	36,000
4-lane undivided arterial	24,000
3-lane divided arterial	20,000
2-lane divided arterial	16,000
2-lane undivided arterial	12,000

The ADT volumes on each highway and street were compared with the appropriate capacity value to determine the volume/capacity ratio and existing level of service on a facility. The existing volume/capacity ratios (and associated levels of service) are shown together with the existing traffic volumes in Figure 4. All of the highways and most of the arterial streets in the Barstow area presently operate at Level of Service A. In the downtown Barstow area, Main Street operates at Level of Service D through the section which carries 21,000 vehicles on a four-lane undivided street. Barstow Road north of I-15 and Mountain View Avenue east of Muriel Drive operate at Level of Service B.



## 2.3 Rail Transportation

The city of Barstow is a principal rail distribution point for Southern California. The AT & SF railroad mainline passes through Barstow, as does the Union Pacific Railroad. The rail yards, located between Main Street and the Mojave River, are an important element of the Barstow economy; they also represent a major circulation barrier for vehicle travel to and from the north of Barstow.

## 2.4 Alternative Travel Modes

Public transportation is available within Barstow in the form of a Dial-A-Ride service which operates seven days per week.

Separate facilities for bicycles have not been provided within the City's circulation system, so bicycles utilize public roadways along with other traffic. The City's current plan of bicycle routes (streets which are signed for bicycle use) is shown in Figure 5.

Existing pedestrian flows are not of the magnitude which requires separate pedestrian facilities. Many arterial streets provide sidewalks within the parkway section of the street right-of-way.



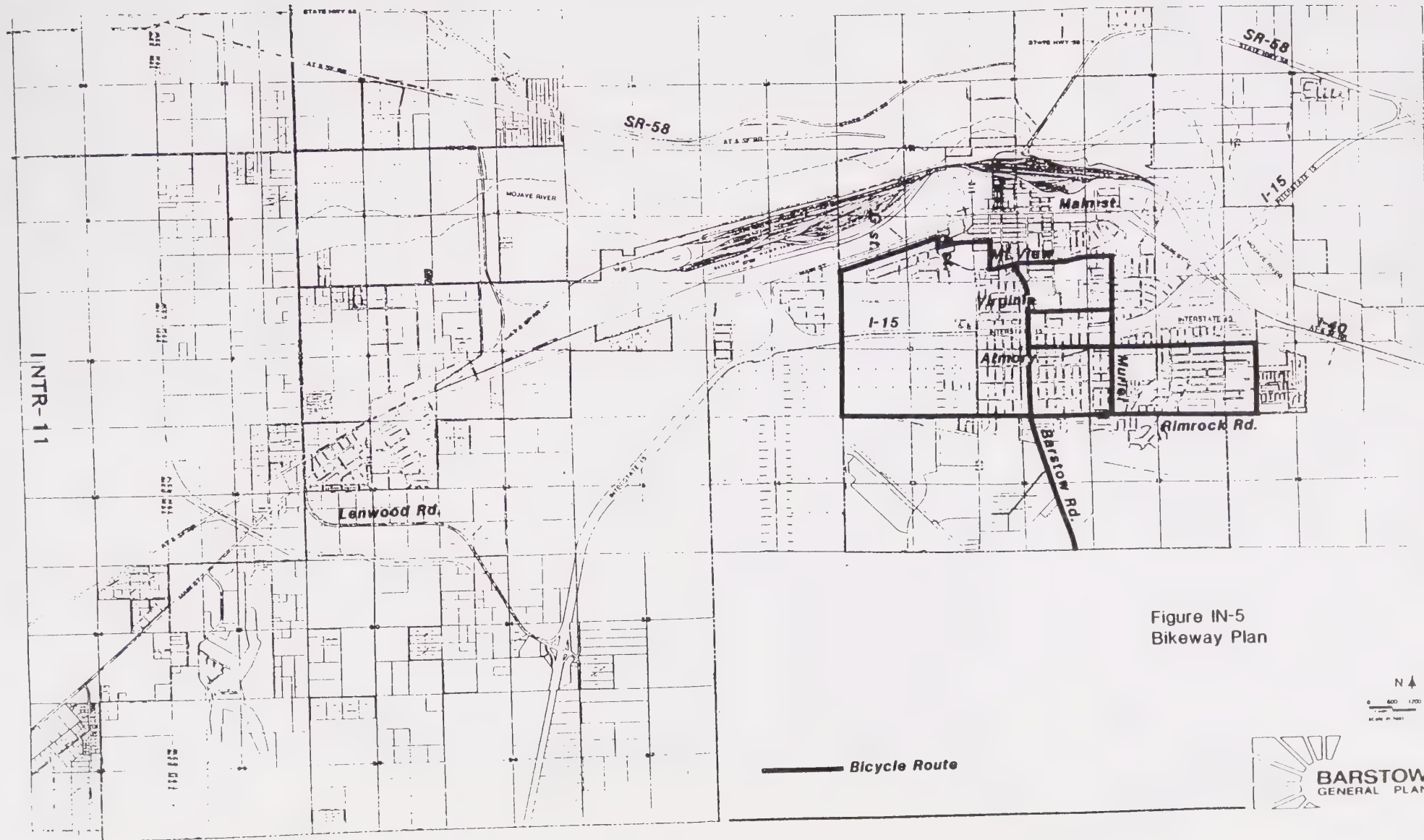


Figure IN-5  
Bikeway Plan

N  
0 600 1200  
Scale in feet  
1:24,000

**BARSTOW**  
GENERAL PLAN





### 3.0 Wastewater

#### 3.1 Wastewater System

The City of Barstow has provided data on the existing wastewater system. Figure 6 which accompanies this report shows the existing trunk line system and sewer pipe size. The existing wastewater transport system can handle a maximum flow of approximately 20 million gallons per day (mgd) at the maximum collection point near the City's sewage treatment plant. The treatment plant, located in the southeastern corner of the city near I-40 and the Mojave River, has an existing capacity of 4.5 mgd.

#### 3.2 Wastewater System Usage

Independent calculations of existing wastewater usage in Barstow verify the City Engineer's review of the sanitary sewer system conducted in June, 1986. With a 1985 population of 20,000, the average daily wastewater flow at the collection point near the treatment plant is 2.49 mgd. The peak flow is 4.2 mgd. Since the transport system has a capacity of 20 mgd near the treatment plant, existing usage is well below the transport system's capacity. The existing treatment plant's capacity of 4.5 mgd is only 7 percent above the existing peak flow. However, the current plant maximum peak flow capability is 7.65 million gallons.<sup>1</sup> The plant appears capable of accommodating considerable growth within the city during the planning period.

It would be advisable for the City to install flow meters at the outlet points of major branch lines of the sewer system to provide accurate flow-rate data on the existing sewer system. These flow-rate data would improve the assessment of future service requirements by providing a more accurate calculation of the future design flow basis.

1) Specifications for Construction, UPC-CAL 572, #2173, Interfield and Montgomery, 1971.







## **4.0 Water Supply**

### **4.1 Water Supply System**

The Southern California Water Company provides water to the City of Barstow. A map of the existing water supply system was obtained and used to prepare the attached plan of the existing major supply system, Figure 8. The Public Utilities Commission of the State of California requires that water companies supply to their customers at pressures between 40 and 125 psi. With the exception of a few locations, the Barstow Water Distribution System meets these requirements. Facilities are planned that will correct the problem in the areas where pressures are not in this range.

Fire flow requirements are set by the Barstow Fire District. Fire flows are generally adequate in Barstow. They will be greatly improved in the downtown portion by a current project underway with the Southern California Water Company making changes in their pumping procedures. Additionally, a reservoir scheduled to be built in 1989 in the south portion of the City will improve the fire flows along Rimrock Road.

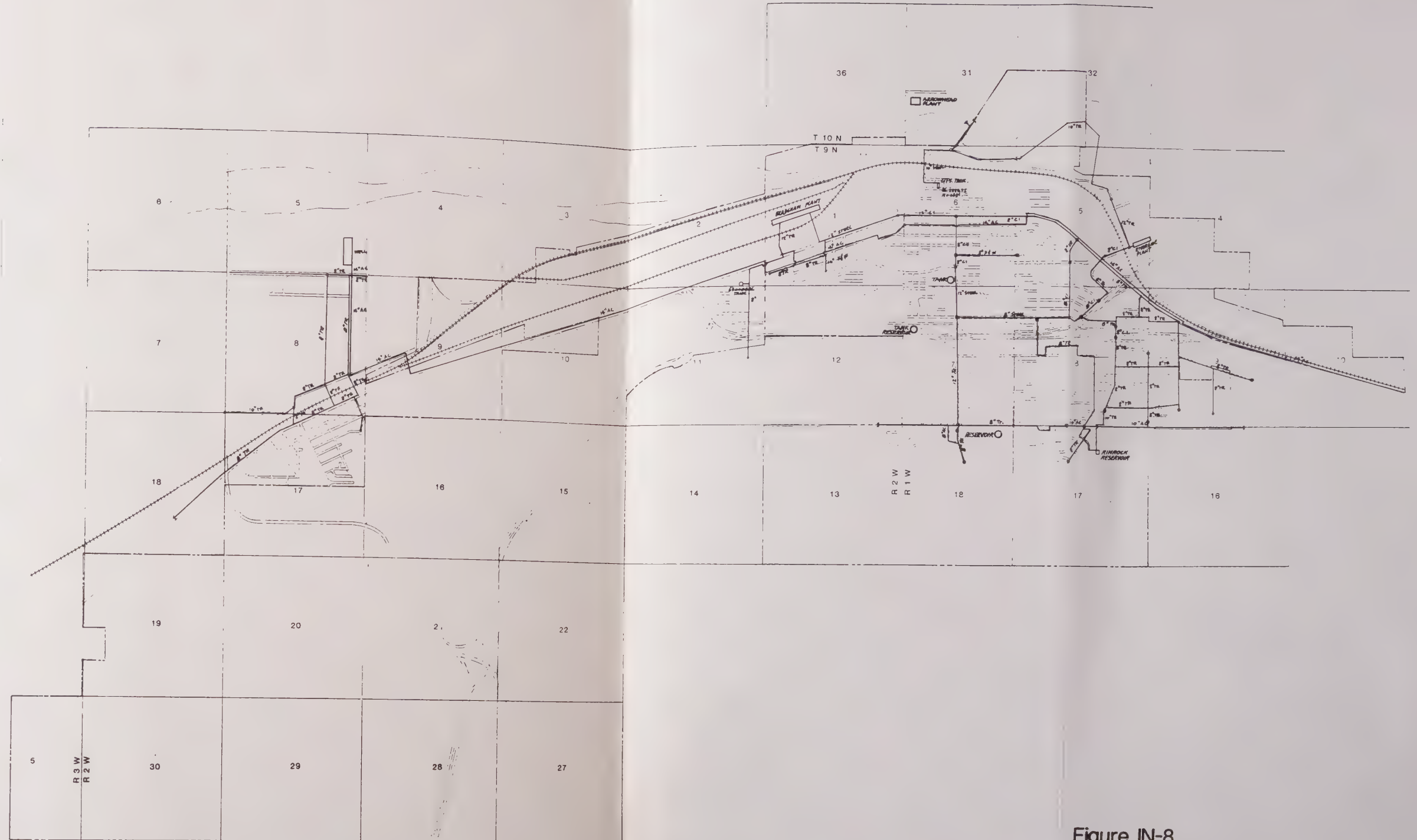
### **4.2 Water Usage**

Annual water usage in the Barstow System is approximately 1.15 acre-feet per customer per year or a total of 10,800 acre-feet including the Nebo Marine Base. Maximum day demand is estimated to be 2,211 gallons per customer or 14,300 gallons per minute which includes 2,000 gpm to the Nebo Marine Base.

The system is currently supplied by 20 wells with a total capacity of approximately 14,900 gallons per minute. An additional well is scheduled to be drilled and placed in service in the first quarter of 1988, and additional wells will be needed in future years to keep pace with the City's growth.











## 5.0 Storm Drains

### 5.1 Storm Drains Systems

There are three major watershed areas in the city of Barstow. They are shown on the attached storm drain system map, together with data on the existing storm drain system. Virtually all of the City is drained by means of surface flow drainage on streets. Within each watershed area, a key drainage channel is provided to carry runoff water into the Mojave River.

The central area of Barstow is drained by the Southwest Barstow Channel. The run off capacity of this channel at the critical location is 5,000 cubic feet per second (CFS). The capacity of the Lenwood Channel is 1,480 cfs. No data were available to document the capacity of the drainage channel serving watershed area "A" at the east end of Barstow.

### 5.2 Peak Runoff

Calculations of runoff during a 100 year flood were prepared for watershed "B", which includes most of the developed portions of Barstow. The maximum discharge rate through the Southwest Barstow Channel would be 1,300 cfs. This discharge rate was calculated using data from the San Bernardino County Flood Control District hydrology manual, in combination with the total area, elevations, and runoff length within the watershed. Based on these calculations, the existing flood control facilities serving Barstow provide more than adequate capacity to handle runoff from a hundred year flood.





Storm Drain System

↑ North  
0 4000  
scale in feet





## 6.0 UTILITIES

### 6.1 Electricity

Southern California Edison (SCE) supplies electricity to the Barstow area. Analysis by local SCE staff indicates that present facilities are capable of supplying projected power needs for at least the next five years. SCE has conducted some analysis of potential power demands within the next 20 years, and has indicated that the existing substations have the capability of being expanded to serve long-range future demands.

### 6.2 Gas

Natural gas is supplied to the Barstow area by the Southwest Gas Corporation. The average monthly consumption for the Barstow/Lenwood area is approximately 76,000 million cubic feet (mcf). The peak month demand is approximately 1,255,000 mcf. Southwest Gas Corporation staff indicate that future extensions to the supply system will be made as necessary to serve future demands.

### 6.3 Telephone Service

The Continental Telephone Company provides telephone service to the Barstow area. Representatives of Continental Telephone have indicated that the telephone system in the Barstow area can be expanded as necessary to accommodate future demands.





## 7.0 INFRASTRUCTURE ISSUES

This section presents the key issues related to the infrastructure system in the Barstow area. These issues are based on the Community Policy Plan prepared by the City in 1986.

### 7.1 Circulation Issues

1. Provide a safe and efficient circulation system minimizing the impact of the automobile.
2. Maintain consistency between the City General Plan Circulation Element and proposed land uses.
3. Provide necessary arterial and collector streets to ease heavy traffic, particularly to alleviate congestion on Main Street.
4. Give priority to the maintenance of existing streets.
5. Analyze future developments to assure that vehicular traffic volumes will not exceed street designs, or cause excessive traffic conflicts or congestion.
6. Do not permit new residential developments to front on major arterial highways.
7. Give priority to widening, extending, and/or rerouting streets on the General Plan Circulation Element.
8. Actively encourage completion of the rerouting of Route 58.
9. Place major emphasis on improving existing streets and highways that have high accident rates.
10. Require necessary dedications and street improvements adjacent to private projects.
11. Any increases in density or intensity beyond that reflected by existing zoning shall require preparation of a traffic study by a qualified civil or traffic engineer, or offsetting mitigation as approved by the City Engineer.

### 7.2 Parking Issues

1. Initiate efforts to ensure adequate parking in all areas of the community, particularly in the downtown areas.





2. Revise the City's off-street parking ordinance to reflect up-to-date standards.
3. Evaluate areas in need of additional parking facilities.
4. Periodically evaluate and update, as appropriate, parking requirements for new development.
5. Develop standards for eliminating on-street parking where such parking might create safety hazards or impinge upon needed arterial traffic carrying capacity. On-street parking should not be removed unless adequate and convenient replacement parking is available.
6. Establish parking design standards for motor homes, trucks, trailers, and motor bikes.
7. Require adequate parking in all new projects.

### 7.3 Scenic Highways

1. Scenic corridors include segments of land bounded on either side by readily discernable land features; all developments within such boundaries must be visually appealing.
2. Scenic highways include any public street or highway which could be properly landscaped and maintained to be visually pleasing to the eye.
3. Scenic highways and corridors include at least the following, as designated by the State of California:
  - ° I-40 from Barstow to the Colorado River at Needles;
  - ° SR-58 east from Kern County to Barstow;
  - ° I-15 from Barstow to Baker;
  - ° SR-247 from Barstow south to the junction of SR-62.
4. Ensure adequate landscaping on both sides of scenic highways where feasible. Place emphasis on the use of native desert flora where feasible.
5. Incorporate decorative and appropriate welcome signs near major entryways to the community.



6. Landscaping or walls must not restrict views from a scenic highway to desert valley areas.
7. Limit signage along scenic highways to on-site business identification, recreational features, and off-site directional signs for immediate adjacent residential developments.
8. Ensure that all such signs are structurally pleasing to blend with the local environment.
9. Colors and messages must also harmonize. Do not allow rotating, flashing, spinning or animated signs in scenic corridors.
10. Place utilities underground along scenic highways.
11. Develop specific criteria and standards for building designs, setbacks and landscaping on properties adjoining within the scenic corridor.
12. Adopt land use control policies along scenic highways and corridors which are consistent with State and County adopted policies.

#### **7.4 Alternative Travel Modes**

1. Separate automobile routes from critical pedestrian, bicycle and equestrian routes either through grade-separations or physical barriers.  
(Note: the word "critical" has been added).
2. Provide adequate signage for pedestrian, bicycle and equestrian route crossings for direction and safety.
3. Phase traffic signals for the safe accommodation of pedestrians, bicyclists, elderly and handicapped persons, etc.
4. Provide wheelchair ramps in new curbing or existing curbing that is rebuilt in public building area.
5. Integrate pedestrian, bicycle and equestrian paths into separated open spaces where possible, to avoid conflict with automobile routes.
6. Establish special areas and facilities for off-road vehicles and motorbikes.

Note: the community policy of giving high priority to a pedestrian bridge over Barstow Road from the Community Center and Information Center to the Community Park has not been included.



## 7.5 Sewer and Water Facilities

1. Coordinate efforts with other agencies to ensure that all property owners within the Barstow's sphere of influence have adequate sewer and water facilities.
2. Give priority to providing adequate water and sewer facilities to existing residents of the City of Barstow.
3. Initiate and coordinate efforts of a special committee for planning and developing water facilities for the greater Barstow area.
4. Give priority to the design and construction of the proposed sewer facilities as outlined in Barstow Capital Improvement Program.
5. Prepare environmental guidelines before any major public works projects are approved by the City.
6. Initiate a phasing program of continued maintenance and repair for all existing and future water and sewer facilities.
7. Require all projects to provide adequately-sized water and sewer lines or, alternatively, require the payment of appropriate development fees. This is necessary to minimize any potential burden on the tax base and citizens of Barstow.

## 7.6 Drainage

The Barstow Planning area is divided into seven drainage areas. Future drainage improvement locations are depicted on the overall drainage map. All development shall provide adequate drainage facilities and contribute to the construction of master storm drain facilities. The sizing and extent of such facilities shall be determined by the City Engineer.

## 7.7 Public Services

1. Develop a joint planning and development program (including appropriate City, County, regional and relative agencies) to upgrade the existing level of services and facilities and to avoid duplication of effort.
2. The City needs to assume the leadership role in implementing the program outlined above.
3. Initiate formation of a special committee/commission to plan and develop the joint use and management of public facilities and services within the greater Barstow area.



4. Develop a comprehensive Capital Improvements Program designed to implement the objectives of the general plan, redevelopment plan, to eliminate major deficiencies in public facilities. The CIP should include a 5-year program.
5. Review various district boundaries to determine if these can be made coterminous for providing mutual aid services realistically not limited to district boundaries.
6. Clearly delineate responsibility for these capital improvement projects to either the City or the redevelopment agency.
7. Explore ways of reducing cost/revenue gaps in servicing new developments. Fair and equitable methods for distributing costs should be pursued.
8. The costs of master infrastructure installation should be defrayed through appropriate planned investment fees or other methods of implementation, e.g., impact fees, Mello-Roos community facilities districts, assessment districts, reimbursement policies, etc.
9. Each development shall provide appropriate dedications, improvements and fees so as to not burden the existing tax base of the City of Barstow or its approved Capital Improvements Program, including timing and implementation.
10. Facilities shall be designed and installed to further the health, safety and welfare of the City.





**DRAFT**

**CITY OF BARSTOW**

**GENERAL PLAN ENVIRONMENTAL IMPACT REPORT**

**AUGUST, 1987**

**COTTON/BELAND/ASSOCIATES, INC.  
1028 NORTH LAKE AVENUE, SUITE 107  
PASADENA, CA 91104**

**#424**



## 1.0 INTRODUCTION

### 1.1 Scope and Format

The City Council authorized the update of the Barstow General Plan to bring it into conformance with State Law and to provide a firm basis for future development decisions. The implementation of the goals, objectives and policies of the Barstow General Plan will serve to mitigate adverse impacts from future development and growth. In certain instances, those goals and policies also include specific measures designed to correct or mitigate an existing deficiency.

The environmental impacts associated with the implementation of a local general plan are more difficult to assess than those from a specific project. For this reason, the degree of analysis and precision for a local general plan will not be as great as that for a specific construction project development. The CEQA Law and Guidelines recognizes the difficulty in applying CEQA Regulations to a local general plan. Section 15176 of the CEQA Guidelines state:

"An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with a greater degree of accuracy."

The CEQA Law and Guidelines go on to say that an EIR prepared for a local General Plan should focus on secondary effects that may be expected with the adoption and subsequent implementation of the general plan.



## 1.2 Required Contents of an EIR

The General Plan and Technical Reports to the individual elements are referenced throughout this EIR. The format of the EIR is summarized in Table 1. Specific content requirements are outlined below.

**Table of Contents (Section 15122):** An EIR must contain a Table of Contents or an index to assist the reader in finding the analysis of different subjects and issues.

**Summary (Section 15123):** A brief summary must be included to describe the proposed action and its consequences.

**Project Description (Section 15124):** A description of the proposed project must be provided including the following:

- (1) Maps showing the project's boundaries and regional location;
- (2) A statement of objectives sought by the proposed project;
- (3) A general description of the project; technical, economic, and environmental characteristics; and
- (4) A statement briefly describing the intended use of the EIR.

**Environmental Setting (Section 15125):** An EIR must include a description of the environment in the vicinity of the proposed project as it exists prior to the commencement of the project.

**Environmental Impact (Section 15126):** The environmental impacts anticipated to result from the implementation of the proposed project must be described. The document should include a description of any significant environmental effects of the proposed project, significant environmental impacts, the effects of the which cannot be avoided, and the identification of mitigation measures designed to reduce the significant effects. The EIR must also include a range of reasonable alternatives to the project which could feasibly attain the basic objectives of the project.

Other subsections outlined in Section 15126 require that an EIR describe the cumulative and long-term effects of the proposed project which could affect the environment and the identification of any significant irreversible environmental changes which would result from the project.

**Non-significant Environmental Effects (Section 15128):** The EIR must contain a statement briefly describing the reasons that certain environmental effects were determined to be non-significant, and as a result, were not analyzed in the EIR.



TABLE 1  
SUMMARY OF CEQA REQUIREMENTS

Required Description and Analysis	Primary Reference
1. <u>Summary</u> (Section 15123 of Guidelines)	Section 1: Introduction, EIR
2. <u>Description of Project</u> (Section 15124 of Guidelines)	Section 2: Project Description, EIR
3. <u>Description of Environmental Setting</u> (Section 15125 of Guidelines)	Technical Reports, General Plan
4. <u>Environmental Impact</u> (Sections 15126 and 15143) a. Significant Environmental Effects b. Effects Which Cannot be Avoided	Section 3: Environmental Impacts, EIR
5. <u>Mitigation Measures</u> (Section 15126)	Section 3: Goals and Policies, General Plan
6. <u>Alternatives to the Proposed Action</u> (Section 15126 of Guidelines)	Section 4: Alternatives, EIR
7. <u>The Relationship Between Local Short-Term Uses of Man's Environment and Long-Term Productivity</u> (Section 15126 of Guidelines)	Section 5: Cumulative Impacts, EIR





### 1.3 Summary

#### Project Description

The project is the land use policy as described in the Community Development Element of the City of Barstow General Plan. The land use policy is concerned with guiding development in the City over the life of the Plan.

#### Environmental Impacts

The environmental impacts anticipated to result from the implementation of the Barstow General Plan will result primarily from the Plan's land use policy. The potential impacts are summarized below.

**Land Use** - The Barstow General Plan will guide the type and density of development in areas of the City which are presently undeveloped. The land use policy, if implemented, will result in significant changes in land use on a city-wide basis.

**Housing** - A significant number of new residential units will be possible in those areas of the City designated for residential development. The housing objectives and programs listed in the Housing Element of the General Plan provide actions designed to facilitate the rehabilitation of substandard units and to make provisions for sound, safe, and decent housing to lower income households.

**Population** - The implementation of the land use policy as described in the Community Development Element will result in a significant increase in population due to an increase in housing units.

**Transportation/Circulation** - The implementation of the (Draft) General Plan will result in significant increases in traffic over the existing conditions. The Circulation Element is exclusively concerned with policies designed to improve the movement of traffic in and through the City.

**Utilities** - The implementation of the land use policy will result in a significant increase in utilities consumption due to increased development.

**Public Services** - Increased development will require additional staffing for the police and fire departments if the existing level of service is to be maintained.

**Air Quality** - The intensification of land uses in certain portions of the City will result in additional traffic and a corresponding increase in mobile emissions. Goals and policies designed to reduce traffic and, therefore, mobile emissions are included in the Circulation Element.

**Noise** - The primary source of noise in the City of Barstow will continue to come from vehicular traffic. This General Plan update includes policies and implementation measures designed to reduce noise impacts from both mobile and stationary sources. No significant noise impacts will result from the implementation of these goals, options, and policies.



**Natural Environment** - The land use policy, due to the substantial alteration in land use, will result in a significant effect on the environment. A number of goals and policies are provided in the General Plan which will serve to mitigate the adverse impacts on the natural environment resulting from development.

**Risk of Upset** - The goals and policies contained in the Public Safety Element are designed to reduce the potential for upset within the planning area.

### **Significant Effects**

Any potential significant effects would be related to the proposed changes in land use resulting from the implementation of the Land Use Element. The proposed General Plan will result in increased building intensity and population density in selected areas of the City. On a City-wide basis, however, those increases would be more than offset by the reduction in allowable development densities in other areas of the City.

**Land Use** - The land use plan will result in a long-term transition in selected areas from vacant, undeveloped land to urbanized residential, commercial, or industrial development. These changes could be considered a substantial alteration of the present land use in some areas. This transition may result in significant impacts in other areas.

**Transportation/Circulation** - Increased development of residential, commercial, and industrial land uses with implementation of the General Plan will add additional traffic to the circulation system. The adoption of goals and policies contained in the General Plan will aid in reducing the adverse effects of possible traffic increases.

**Air Quality** - The additional vehicular traffic in areas will produce emissions which will result in an incremental deterioration of air quality in the region. However, air quality is expected to improve by the year 2005 due to improved vehicles and stricter controls and standards. In addition, the implementation of policies and measures designed to reduce traffic volumes will result in a decrease in emission levels.

**Public Services** - The more intensive uses in selected areas and greater population anticipated under the General Plan will increase the demand for public services, including police, fire protection services, and water and sewer facilities. The implementation of goals and policies in the Infrastructure Element will serve to mitigate any significant effects.

**Energy and Utilities** - The more intense land uses and larger population will result in the consumption of greater amounts of energy and increase the demands on utilities, particularly electricity and natural gas. The conservation measures proposed in the General Plan, in addition to the implementation of goals and policies in the Resource Management Element, will serve to reduce the significance of these impacts.

**Earth** - The City consists of large areas of undeveloped land. The implementation of the General Plan would have an impact on the undisturbed soils and topography within the planning area.



**Water** - The proposed General Plan may affect surface water and the natural drainage of water bodies due to continued urbanization.

## **Alternatives**

Several alternative land use concepts were developed during the preparation phases of the General Plan and were presented on graphics which are on file in the Planning Department.

The alternative scenarios included the following:

- ° mixed-use designations rather than Specific Plans.
- ° use of "Desert Living" land use category as a holding designation.
- ° minor alterations of land use designations ythroughout the planning area.

Finally, the adopted General Plan land use policy served as the "no project" alternative.

## **Analysis of Long-Term Impacts and Cumulative Effects**

The adoption and implementation of the goals, objectives, and policies of the Barstow General Plan will represent a continued commitment of the planning area to the urban uses. The development of the planning area as proposed will preclude other development options for the life of the structures constructed on the site.

Any long-term environmental effects would be related to proposed changes in land use and would contribute to impacts on land use, population, circulation, air quality, housing, public services, energy consumption, and noise.

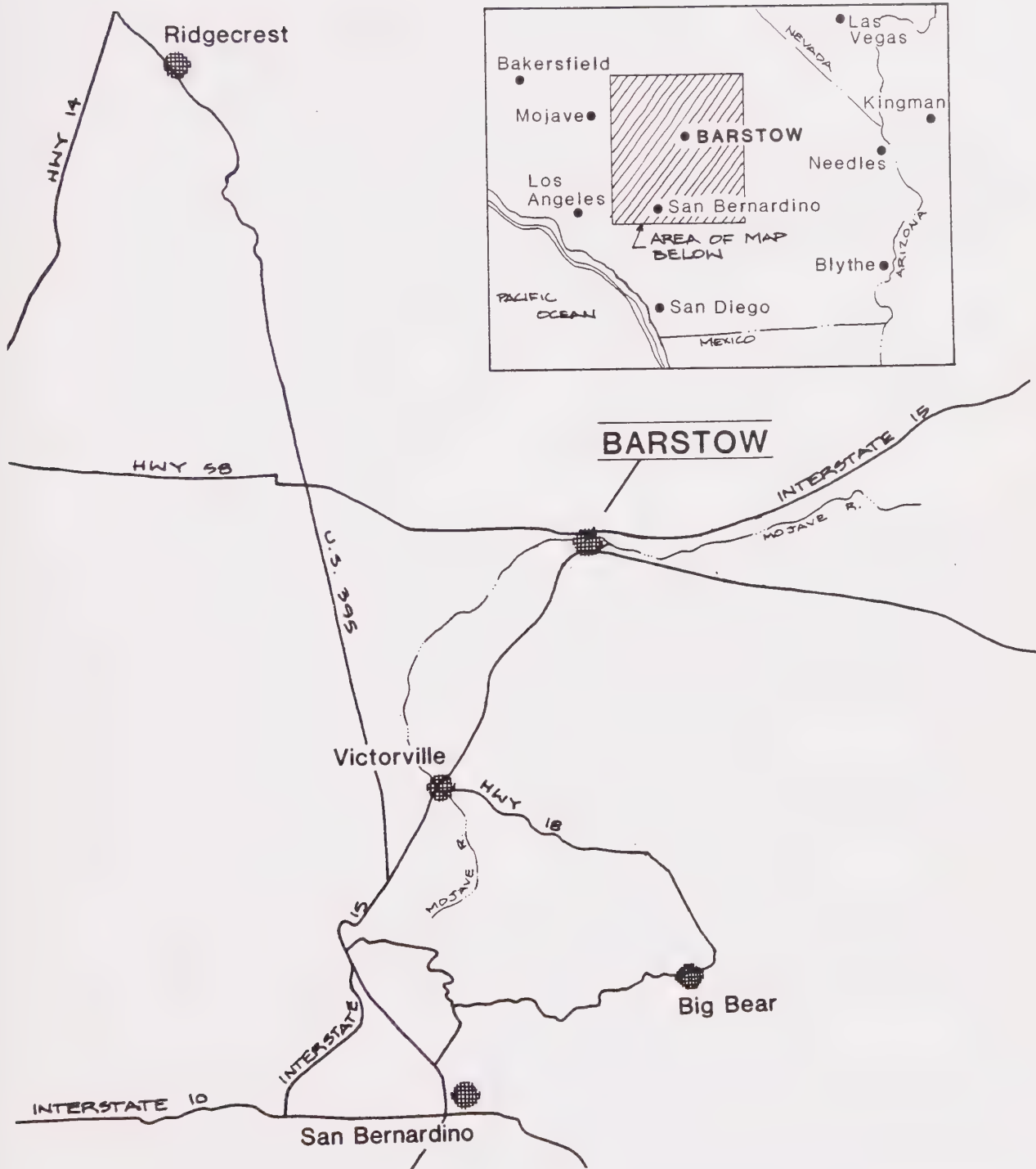
The primary effect on the long-term productivity of the environment will be the continued and, in certain instances, a more intense commitment of the area to urban uses. In addition, the proposed General Plan is intended to plan for development of the City's recreational, commercial, industrial, and residential uses in those areas of the City currently undeveloped. Additional development in the area will consume nonrenewable resources during the construction and life of the proposed uses.

All impacts associated with implementation of the General Plan are considered irreversible within a short-term time period. The more intensely urbanized land uses and the population increases anticipated under the General Plan will create irreversible changes in the following areas: land use patterns, population distribution, circulation, air quality, housing characteristics, energy consumption, public services, and noise.

Growth-inducing impacts related to infrastructure requirements of the increased population, coupled with the need to upgrade existing deteriorating systems, could lead to indirect growth-inducing effects.











## 2.0 PROJECT DESCRIPTION

### 2.1 Description of General Plan

The purpose of the Barstow General Plan Update is to facilitate informed decisions regarding ongoing and future development within the planning area. The existence and content of the General Plan are required under State law, (Government Code Section 65302) and each part, or element, must be both internally consistent and consistent with the other elements.

The Barstow General Plan is divided into six elements:

- ° Community Development
- ° Housing Element
- ° Natural Resources Element
- ° Cultural and Recreational Resources and Recreation Element
- ° Infrastructure Element
- ° Hazards Element

Each element contains a brief introduction; a summary of the issues, problems, and concerns addressed in the element; a statement of goals; and policy statements that are to be used for direction when making decisions concerning those subject areas in the element. The General Plan is concerned with projecting conditions and needs through the year 2010. Projections for population, housing, and public facilities are determinants for policy selection. The long-term emphasis in the plan is not meant to mark "beginning" and "ending" points; instead, the long-term perspective is the framework under which short-term decisions will be made.

Several assumptions have been made for long-range planning purposes. These assumptions, along with the definition of existing conditions, form the basis of plan projections for future conditions and needs. The General Plan assumptions are:

1. The Plan should maintain and enhance the economic viability of the downtown area by restricting the type and extent of commercial areas in other portions of the community. A clear designation needs to be made between commercial uses which serve City residences and those which serve visitors.
2. Certain types of uses should be permitted only under special conditions that ensure compatibility with adjacent land uses; such uses include:
  - a. Commercial development that occurs in a linear pattern parallel to the adjacent roadway as opposed to clustered commercial development.
  - b. Commercial facilities primarily catering to non-residents (e.g., motels and hotels).
  - c. Scrap yards and junk yards.



- d. Projects which involve extensive cut and fill.
  - e. Sand, gravel and other borrow operations.
3. Whenever possible, new commercial development should be concentrated in commercial centers.
  4. Industrial uses should be grouped in centers and be physically separated from residential uses wherever possible.
  5. Provision should be made for commercial/manufacturing uses in which a product is either manufactured or wholesaled at the same location where it is retailed.
  6. Land development priorities should be directed toward those commercial uses which maximize revenues, minimize required services, and do not add to population growth pressures.
  7. The potential for the following should be investigated:
    - a golf course and supporting facilities;
    - a tourist train from Barstow to Calico;
    - a golf driving range with night lights;
    - an equestrian center including rodeo facilities; and
    - a water sports complex.
  8. Preservation of historic landmarks is of special concern.
  9. New residential development should not be permitted to front on major arterial highways.
  10. Completion of the Rt. 58 connection with I-15 is a high priority.
  11. Additional parking is needed, especially in the downtown areas.
  12. Automobile routes should be separated from pedestrian, bicycle and equestrian areas.
  13. Special areas and facilities should be established for off-road vehicles and motor bikes.
  14. The major orientation of residential development should be to low and medium densities.
  15. Multiple-family residential projects should be kept at a small scale and should be compatible in design with the single-family residential areas wherever possible.
  16. The City should explore the feasibility of some mixture of residential and commercial uses, particularly in the downtown area.



17. New housing should be prohibited from areas subject to flooding, seismic and blow sand hazards. Development should be limited from areas with steep terrain, unstable soils, seismic hazard, flooding, blow sand, noise, and fire hazards.
18. The use of planned unit development needs to be encouraged.
19. Priority must be given to upgrading public facilities, especially as they relate to residential neighborhoods.
20. Current agricultural areas should be preserved and protected.

The time-frame of the plan is for just over twenty years. Some elements, due of the nature of the topics addressed, have a long-term horizon (such as seismic and flood hazards), whereas others have a shorter perspective such as land use and housing issues.



## **2.2 Project Location**

The Barstow Planning Area includes all of the land area presently within the corporate boundaries of the City of Barstow and unincorporated areas immediately adjacent to the City. These unincorporated areas are presently under the jurisdiction of San Bernardino County though have been designated as being within the City's "Sphere of Influence". The Sphere of Influence is determined by the San Bernardino County Local Agency Formation Commission. Consideration of these unincorporated areas in this General Plan Update is crucial since the Sphere of Influence identifies County areas that may be subject to future annexation.

## **2.3 Project Description**

The General Plan provides guidance for the development of approximately 24,570 acres of land. Of the 14,010 acres within the Barstow corporate limits, the General Plan designates approximately 6,190 acres single-family residential, (Desert Zoning and Neighborhood Residential), approximately 230 acres multi-family residential (Urban Residential), 210 acres of commercial uses, 1,210 acres of industrial uses, and 5,130 acres of open space; specific plan, agricultural and recreational acres are also included. Approximately 990 acres of the project area are freeway right-of-way. The plan also permits for schools, parks, and other public facilities.

Residential densities and commercial and industrial building areas are based on the General Plan.

The anticipated population of the planning area by the year 2000 is 35,000 persons based on an assumption of 2.57 persons per dwelling unit.

Commercial uses within the project area may consist of such uses as general commercial, office commercial, commercial center, business park, village commercial, or mixed use. Building area or floor area ratios between these uses may vary. Based on the General Plan, it is estimated that the project area may ultimately contain as much as 2 million square feet of new and existing office development, and as much as 4.5 million square feet of new and existing commercial development.

Light industrial land use designations may include uses as light industry, office, or research and development use. Some mixed use commercial/industrial uses may also be considered in this category. Based on average site coverage standards of 50%, the General Plan may include an estimated 6 million square feet of building space in the light industrial land use designation.

Transportation/visitors-serving commercial uses could potentially result in 1 million square feet of new development.

The Land Use Element underscores the City's commitment to preserving and encouraging commercial and industrial activities that benefit the community and the surrounding region. Undeveloped land is currently available to those





businesses wishing to expand or relocate in Barstow. The policies contained in the Land Use Element require the City to consider both the costs and benefits associated with future commercial and industrial development and to discourage those activities having a negative impact on the City and its residents.

The City's land use policy, as proposed, is depicted on Figure CD-1 of the Community Development Element. The land use policy is described in detail in the Community Development Element contained in the Barstow General Plan.



### 3. ENVIRONMENTAL IMPACTS

Potential environmental impacts are related to the proposed changes in land use resulting from the implementation of the Community Development Element. The proposed General Plan will result in both an increase and decrease in building intensity and population density in selected areas of the City.

The General Plan recognizes, consolidates and preserves existing development patterns in urbanized portions of the community. This includes identification of single-family neighborhoods, and multi-family areas, and protection of these areas from encroachment by incompatible uses. In addition, the encouragement of infill development in urbanized areas is a principal goal of the General Plan.

The General Plan Land Use policy is concerned with planning strategies for development of the extensive vacant, public and private lands peripheral to developed portions of the city. Zoning for these areas is generally limited to low density residential with a minimum lot area of 2.0 acres. This zoning designation serves as "holding zone" and has been subject to change as development interests submit proposals for specific projects. The Specific Plan General Plan Land Use Designation for many of these areas is reflective of this zoning and calls for a variety of uses.

The impacts anticipated to result from City approval of the Barstow General Plan were identified for the project by City Staff and the Consultant. Each potential impact is discussed and analyzed individually in the related sections and is addressed according to:

- ° **Environmental Setting:** A discussion of existing conditions, facilities, services, and environment in the vicinity of the project site.
- ° **Environmental Impacts:** An identification and evaluation of impacts in qualitative and quantitative terms; and
- ° **Mitigation Measures:** A discussion of the measures proposed by the applicant, prepared by the EIR consultant, or required by the City for inclusion in the project to minimize adverse environmental effects.

The issues addressed in this EIR include the following:

Land Use	Section 3.1
Housing	Section 3.2
Population	Section 3.3
Circulation	Section 3.4
Utilities	Section 3.5
Public Services	Section 3.6
Air Quality	Section 3.7
Noise	Section 3.8
Natural Environment	Section 3.9
Risk of Upset	Section 3.10



### 3.1 Land Use

**Environmental Setting:** The existing land use in the City of Barstow is described in detail in the Community Development Element Technical Report. Figures in the Community Development Element and the Community Development Element Technical Report describe the location and extent of existing land uses.

**Environmental Impacts:** The implementation of the land use policies as they are described in the land use element will not directly result in new development, the policies will serve to guide future development that may occur within the planning period of the General Plan. The General Plan land use policies; in conjunction with the various available implementation tools (zoning ordinance subdivision map act, planning, zoning, and development laws, etc.) will govern the location, intensity, and density of development that will occur within the time frame of the Plan.

The individual land use categories are described in detail in Section 2 of the Community Development Element. These descriptions identify the potential development density in terms of dwelling units per acre for residential development and site coverage ratios for commercial development. In addition, the potential population density for the various residential categories is provided.

The environmental assessment that will analyze the environmental impacts anticipated to result from the implementation of the Community Development policy is based on several important assumptions:

1. The location of future development will correspond to the location of land uses described in the Community Development Element;
2. The densities and intensities of future development will occur at the densities and intensities prescribed in the Community Development Element;
3. Complete "build-out" will occur at some point within the planning period and subsequent development will involve recycling at densities and intensities described in the Community Development Element; and
4. Future infrastructure improvements will be implemented (flood control, roads, sewer, water, etc.) to enable development to proceed as planned.

This analysis considered the impacts if development proceeds at the maximum densities indicated in the Community Development Element. Theoretically, any future development scenario will fall somewhere within the ranges examined in this environmental impact report.

Table 2 outlines the land use acreage for each land use category contained in the Community Development Element, then compares it with currently existing development and the General Plan as adopted in 1976. As evident from examination from Table 2, there is considerable potential for development due to the sparse nature of existing development and large tracts of undeveloped land within the planning area.



TABLE 2  
LAND USE: EXISTING AND PROPOSED GENERAL PLAN

Land Use Category	Existing	Adopted General Plan(1)	Proposed General Plan
Residential	1,066 acres	1,201 acres	6,680 acres
Commercial	476	255	210
Public/Institutional	391	441	340
Industrial	1,520	1,248	1,210
Specific Plan areas	-	-	1,790 (3)
Vacant/Open Space	8,297	7,012 (2)	1,520
Transportation Corridors/Easements	<u>2,260</u>	<u>2,260</u>	<u>2,260</u>
Total	14,010 acres	12,317 acres	14,010 acres

- (1) Adopted General Plan land use policy from Barstow General Plan adopted in 1976.
- (2) Includes very low density residential "holding area".
- (3) Includes mix of residential, commercial and industrial uses, 90% of this area is within the Lenwood Specific Plan which calls for industrial/visitor-serving commercial uses.

**Mitigation Measures:** Please refer to Table 3 for the relevant policies which will serve to mitigate potentially adverse impacts related to any proposed changes in land use.

TABLE 3  
GENERAL PLAN LAND USE IMPACTS  
MITIGATION MEASURES

Element	Policies
Community Development Element	All goals, objectives and policies
Hazards Element	All goals and policies
Housing Element	All goals, and policies
Infrastructure Element	All goals and policies
Natural Resources Element	All goals and policies
Cultural and Recreational Resources Element	All goals and policies





### 3.2 Housing

**Environmental Setting:** The characteristics of the existing housing stock within the City of Barstow are described in the Housing Element Technical Report.

**Environmental Impacts:** The implementation of the Community Development Element will not directly result in new residential development occurring but rather, will serve to guide future development in terms of location, density, and intensity. The extent and nature of residential development possible under the proposed land use policy is described in Table 4 and compared with the adopted General Plan. If residential development proceeds as outlined in the Community Development Element, approximately 31,790 dwelling units would be located within the planning area. This includes the estimated 7,830 units in the City at the present time. The projected residential build-out is contingent upon the same assumptions stated in Section 3.1 of this EIR.

TABLE 4  
POTENTIAL RESIDENTIAL DEVELOPMENT POSSIBLE  
UNDER PROPOSED GENERAL PLAN LAND USE POLICY

Residential Land Use Category	Area (2) (in acres)	Maximum Allowable Density	No. of Units Possible Under Proposed GP	No. of Units Possible Under Adopted GP-1976
Desert Living	2,770	2 du/acre	5,540	)
Neighborhood Residential	4,390	5 du/acre	21,540	) 12,051
Urban Living (1)	280	15 du/acre	4,200	)
Residential/Incentive Area	5	20 du/acre	100	) 2,859
Total	7,445	N.A.	31,380 (3)	14,910

(1) Includes 25% of administrative center area.

(2) Gross land area includes streets and easements.

(3) Includes 7,830 existing dwelling units (1987) and 5,824 dwelling units in 1976.



Mitigation Measures: Please refer to Table 5 below for identification of specific General Plan policies which will serve to mitigate any potential adverse impacts relative to new residential development.

TABLE 5  
GENERAL PLAN HOUSING IMPACTS MITIGATION MEASURES

Element	Policies
Community Development Element	Objectives and Policies 3, 4, 8, 10, 11, 13, 14, 15
Hazards Element	All policies
Housing Element	All policies
Infrastructure Element	All policies
Natural Resources Element	All policies
Cultural and Recreational Resources Element	All policies



### 3.3 Population

**Environmental Setting:** The existing population and demographic characteristics are outlined in the Housing Element Technical Report.

**Environmental Impacts:** The future population of the City of Barstow will be determined by the natural increase of the resident population (births minus deaths) and population growth resulting from in-migration. The General Plan land use policies will affect the latter in several ways:

1. Land use policies will govern the extent and intensity of new residential development, thus providing new housing opportunities;
2. Industrial and commercial development will attract new residents; and
3. Amenities that will be created or enhanced through the implementation of the General Plan will serve to attract new residents.

Numerous other factors will also determine the nature and extent of future residential development in Barstow, most of which are beyond the City's ability to control. These factors include nationwide and regional economic trends, interest rates, housing costs, etc.

For purposes of analysis, the EIR assumes that residential development will proceed as outlined in the Community Development Element. Furthermore, the analysis assumes that, at some point in the planning period, the entire planning area will be completely developed and subsequent development will consist of replacement housing at densities and intensities prescribed by the Community Development Element. Finally, the analysis assumes that the existing demographic characteristics will continue through the planning period. The most critical component of this last assumption is average household size.

The potential population that is anticipated to result if residential development proceeds as planned is summarized in Table 6. The calculations used to determine potential future population involved multiplying the average household size (1986 Department of Finance estimate of 2.56 persons per household) by the number of units possible in each residential land use category. The latter figures were derived from estimates contained in Table 4.

TABLE 6  
POTENTIAL POPULATION

Land Use Category	No. of Units	Population
Desert Living (2 units/acre)	5,540	14,200
Neighborhood Residential (5 units/acre)	21,950	56,200
Urban Living (15 units/acre)	4,200	10,800
Residential Incentive (20 units/acre)	100	300
Total	31,790	81,500



As evident from examination of Table 6, there is considerable potential for population growth which may be attributed to new residential development in the undeveloped portion of the city.

The Barstow 1985 General Plan adopted in 1976 estimated the potential build-out population possible under that general plan to be over 45,000 persons. The difference between the adopted General Plan and the proposed General Plan is due to the difference in the area governed under the adopted Plan compared with the larger area considered in the new General Plan. In addition, much of the unurbanized portion of Barstow was placed in a "holding" category which limited development to 0.2 dwelling units per acre.

**Mitigation Measures:** The General Plan policies that will serve to mitigate potentially adverse impacts related to future population growth are identified in Table 7 below.

TABLE 7  
GENERAL PLAN POPULATION IMPACTS  
MITIGATION MEASURES

Element	Policies
Community Development Element	Objectives and Policies 3, 4, 10, 13, 14, 15
Hazards Element	Policies 1, 2
Housing Element	All policies
Infrastructure Element	All policies
Natural Resources Element	All policies
Cultural and Recreational Resources Element	Policies 2, 3





### 3.4 Circulation

**Environmental Setting:** The existing system of roadways and circulation within the City of Barstow is described in detail in the Infrastructure Element Technical Report. The existing traffic volumes and levels of service (LOS) for arterial roadways are also provided in the Circulation Element Technical Report.

The 1986 population in the City of Barstow is 20,050. This represents an overall increase of 18%, or an annual growth of 1.2%, over the 1972 population of 16,950 (1972 being the base year for the Barstow Transportation Study BTS). The population has fluctuated up and down during that 15-year period; however, during the last five years there has been a steady increase in population with annual growth of 2.3%, 3.0%, 2.4%, 2.3%, and 1.8%.

The maximum population which could be anticipated by the year 2000 would be 35,000. To reach this level the City would have to experience an annual growth rate of 3.0% during the next 13 years. Based on the historical data, this level of increase seems unlikely, but can be used as a conservative maximum. The 35,000 population represents a 50% increase over the 1986 population, and a 77% increase over the 1972 population.

Based on the draft General Plan Land Use Element, the City could ultimately contain 22,770 residential units. This represents an increase of 190% over the existing level of 7,830 dwelling units. Since the maximum projected growth by the year 2000 is only 50%, ultimate buildout could not even be approached until well into the 21st century. Because the level of development associated with general plan buildout occurs so far into the future, the traffic analysis is limited to a 15-20 year horizon.

The BTS prepared an analysis of projected traffic conditions for 1995. That analysis was based on assumed population growth of 84% between 1972 and 1995. Review of the growth assumptions used in that study indicate that the BTS traffic analysis is still generally applicable for evaluating traffic conditions for the year 2000 or 2005. Several factors support this conclusion:

- ° The actual population increase from 1972-1986 was only 18%.
- ° The maximum projected growth by the year 2000 represents a 77% increase over 1972.
- ° The growth projections in the BTS are essentially similar to the development patterns in the draft General Plan:
  - the area south of I-15 would experience the greatest increase in housing;
  - retail uses would continue to be concentrated along Main Street; and
  - industrial uses would expand significantly in the Lenwood area.



### Traffic Growth Patterns:

Historical data and projections from the BTS can be used to determine the relationship of traffic growth to population growth in Barstow. The table below shows the observed growth in traffic volumes at selected locations between 1972 and 1986; it also shows the growth projected at these locations in the BTS between 1972 and 1995.

TABLE 8  
TRAFFIC COUNT

Location	Volume Traffic Volume Growth 1972-1986	Projected Traffic Volume Growth 1972-1995
I-15 east of Lenwood Rd.	+20%	+139%
I-15 west of Barstow Rd.	+60%	+189%
I-15 east of Main St. (east)	+37%	+111%
Main St. west of I-15 (west)	+118%	+129%
Main St. east of First Ave.	+23%	+44%
First Ave. north of Main St.	+72%	+172%
I-40 east of I-15	+8%	+121%
Montara Rd. south of I-40	+15%	+48%
Rimrock Rd. east of Barstow Rd.	+150%	+221%
Mountain View Ave. east of Barstow Rd.	+12%	+31%

Source: Parsons, Brinkerhoff; 1987

The main observation to be drawn from these data is that the relative growth in traffic volumes is greater than the population increase. From 1972-1986, the population growth was 18%; at seven of the ten locations traffic growth was greater than 18%, in some cases substantially greater. Therefore, it can be expected that if the population reaches 35,000 by the year 2000, travel demands will increase by more than 50%.

### Implications for Future Traffic Conditions:

The analysis of existing traffic volumes and levels of service indicated only two streets with the potential for traffic problems; Main Street in downtown Barstow, and Barstow Road. In the future, these streets will continue to provide a vital circulation function for the City for several reasons:

- ° these streets provide the only direct access from the I-15 freeway to the City's main commercial and office/administrative areas;
- ° the City desires to encourage and further concentrate future commercial development along Main Street, particularly in the downtown area;
- ° the concentration of future office and administrative uses will occur adjacent to Barstow Road; and



- ° possible alternate routes to Main Street and Barstow Road do not have freeway access, traverse residential areas, or are not sufficiently convenient to be considered as likely alternates.

**Mitigation Measures:** The goals and policies contained in the individual General Plan Elements will serve to mitigate potentially adverse environmental effects. The individual objectives that may also be considered appropriate mitigation measures are identified in Table 9.

TABLE 9  
GENERAL PLAN CIRCULATION IMPACTS  
MITIGATION MEASURES

Element	Policies
Community Development Element	Objectives and Policies 1, 2, 6, 7, 11
Infrastructure Element	Policies 1, 2, 3, 4
Natural Resources Element	Policies 3



### 3.5 Utilities

This section of the Draft General Plan EIR for the City of Barstow is concerned with assessing the environmental impacts on utilities service anticipated from the implementation of the land use policy.

#### Environmental Setting:

##### Water Service -

Domestic water service is supplied by the Southern California Water Company. The service area covers the entire planning area as well as adjacent lands.

The current (1987) annual water demand is 10,800 acre-feet (includes Nebo Marine Base). The system is supplied by 19 wells with a rated capacity of 14,300 gallons per minute. A master plan for water service, which will consider community growth through the year 2000, is currently under preparation.

##### Sewer Service -

The City of Barstow provides waste water treatment within the planning area. Much of the planning area, however, is not currently served by a sewer system. The sewage treatment facility is located in the northeastern portion of the community, adjacent to the Mojave River. The facility is capable of treating 4,500,000 gallons of effluent per day.

##### Electric Service -

Electric energy is provided by the Southern California Edison Company. Power substations are located in Barstow.

##### Natural Gas Service -

The Southwest Gas Company, with offices located in Barstow, provides natural gas service throughout the planning area.

**Environmental Impacts:** The implementation of development as described in the land use policy will result in an incremental increase in energy and water consumption in addition to increased sewage generation. The generation and consumption factors are difficult to evaluate due to the scale of the project, in this case, a city-wide general plan. Furthermore, the precise nature of future commercial and industrial activities is unknown, making exact consumption and generation estimates difficult.

Tables 10 through 13 depict potential utility consumption resulting from development under the General Plan's land use policy. The development scenario assumes complete build-out as described in Sections 3.1 and 3.2 of this EIR.







**TABLE 10  
WATER CONSUMPTION/SEWAGE GENERATION (1)**

Year/ Population	Estimated Annual Demand Acre-Feet	Estimated Maximum Daily Demand Gallons per Minute
1986 20,050	9,640	11,700
2000 30,000	13,800	18,425
Build-Out 81,500	38,560	46,800

(1) Based on Southern California Water Company estimates, derived from the "Barstow Water System, Master Designs", February 25, 1987.

**TABLE 11  
ELECTRICAL CONSUMPTION**

LAND USE	Consumption Factor	Consumption Estimates General Plan
Residential	5,838 Kwh/unit/year	185 million Kwh/year
Commercial	12.3 Kwh/sq. ft./year	80 million Kwh/year
Industrial	4.2 Kwh/sq. ft./year	25 million Kwh/year
Total		290 million Kwh/year

Notes: Consumption rates are from Air Quality Handbook for Environmental Impact Report. South Coast Air Quality Management District, 1983.

**TABLE 12  
NATURAL GAS CONSUMPTION**

LAND USE	Consumption Factor	Consumption Estimates General Plan
Residential	3,918 cu.ft./mo./unit	243 million cu.ft./mo.
Commercial	2.9 cu.ft./mo./sq.ft.	30 million cu.ft./mo.
Industrial	2.9 cu.ft./mo./sq.ft.	17 million cu.ft./mo.
Total		280 million cu.ft./mo.

Note: Consumption factors are from Air Quality Handbook for Environmental Impact Reports. South Coast Air Quality Management District, 1983.



### 3.6 Public Safety

**Environmental Setting:** This section of the Draft EIR for the City of Barstow is concerned with the provision of law enforcement and fire prevention/suppression services. The existing conditions relative to these services are described in detail in the Hazards Element Technical Report.

**Environmental Impacts:** The increased development and corresponding population gains will necessitate an increase in personnel and equipment if the current level of service is to be maintained.

**Mitigation Measures:** Table 13 below identifies the General Plan policies that serve as mitigation measures for any adverse impacts on the provision of safety services.

TABLE 13  
GENERAL PLAN SAFETY IMPACTS  
MITIGATION MEASURES

Element	Policies
Hazards Element	All policies



### 3.7 Air Quality

#### Environmental Setting:

A detailed description of climatic and air quality conditions in the Barstow region is found in the Technical Report of the Natural Resources Element, pages TRNR-2 through TRNR-6.

Environmental Impacts: The adoption of the land use policies contained in the General Plan will not immediately affect air quality in the City and surrounding region. The implementation of specific projects, as allowed under the proposed general plan will result in an incremental degradation of air quality due to traffic-related pollutants and from both on-site and off-site stationary sources.

It is very difficult to evaluate potential air quality impacts that may result with the implementation of the land use policy because of the wide range of development scenarios that may be possible, especially as they relate to commercial and industrial development. For purposes of analysis, the potential air quality impacts that may be expected from future development scenarios are described in Section 3.1 and 3.2 of this EIR. Table 14 compares the potential air quality impacts if development proceeds as outlined in the land use policy at the maximum possible densities.



**TABLE 14**  
**AIR QUALITY IMPACTS**  
**(lbs. of Pollutants Per Day) (3)**

	Carbon Monoxide (CO)	Nitrogen Oxide (NOx)	Sulfur Dioxide (SOx)	Hydro- <sup>1</sup> carbons	Parti- culates
GENERAL PLAN					
<u>Vehicular Source (1)</u> 120,000 trips at 5 miles/trip=600,000 miles per day (4)	11,690	1,950	320	1410	420
<u>Stationary Sources</u>					
Electrical Consumption(2)	20	210	130	10	20
Natural Gas Consumption 9.3 million cu. ft./day	10	50	negl.	negl.	negl.
TOTAL EMISSIONS	11,720	2,210	450	1420	440

Notes: (1) Trip generation factors are from Section 3.4 of this EIR.

(2) Electrical and natural gas consumption rates are from Air Quality Handbook for Environmental Impact Reports. South Coast Air Quality Management District (1983).

(3) Emission factors are from Air Quality Handbook for Environmental Impact Reports.

(4) Vehicular Emissions are based on California State Composite Moving Exhaust Emission Rates for the year 2000 and assumes an average trip length of 3.3 miles at 35 miles per hour.

**TABLE 15**  
**GENERAL PLAN AIR QUALITY IMPACTS**  
**MITIGATION MEASURES**

Element	Policies
Hazards Element	All policies
Infrastructure Element	Policies 1, 2, 3, 4
Natural Resources Element	All policies





### 3.8 Noise

**Environmental Setting:** The existing noise setting is described in detail in the Hazards Element Technical Report. The existing and future noise level contours are indicated in figures found in the Hazards Element.

**Environmental Impacts:** The ambient noise levels will increase relative to the scale and intensity of new development. Future noise generators will be primarily traffic-related, and increases in noise will be directly related to increased traffic. The Hazards Element contains an analysis of the future noise environment based on future traffic.

**Mitigation Measures:** The policies identified in Table 16 below will serve to mitigate ambient noise that may be a direct or indirect result of the implementation of the land use policy.

**TABLE 16  
GENERAL PLAN NOISE IMPACTS  
MITIGATION MEASURES**

Element	Policies
Hazards Element	All policies
Infrastructure Element	All policies



### 3.9 Plants/Animals

**Environmental Setting:** A discussion of biological resources within the Planning Area is found in the Technical Report of the Natural Resources Element, Section 5.0. Included is an overview of native plant and animal life and the identification of rare and endangered species.

**Environmental Impacts:** The General Plan Land Use policy contains a number of specific provision pdesigned to preserve and enhance native plant and animal communities within the Barstow region. These include the identification of significant habitat areas and their protection through very low density or open space land use designations. Areas of special concern are the Mohave River, and Desert Tortoise habitat area.

However, increased population and the resultant increase in use of desert lands will contribute to the degradation of the natural environment. Barstow is surrounded by 12.1 million acres of public lands administered by the Bureau of Land Management. These lands are currently the subject of an extensive planning effort designed to accomodate increased public use while protecting important natural resources.

**Mitigation Measures:** The following policies, identified in Table 17, serve as mitigation measures for any adverse impacts related to the natural environment.

**TABLE 17  
NATURAL ENVIRONMENT  
MITIGATION MEASURES**

Element	Policies
Natural Resources Element	All policies



### 3.10 Risk of Upset

Risk of upset refers to the potential for mishap due to a natural or man-made occurrence. Major areas of concern include flooding, seismic, and man-made hazards.

**Environmental Setting:** The existing conditions concerning flood, seismic, and man-made hazards are described in detail in Section C of the Hazards Technical Report and in Section 2.1 of the Hazards Element.

**Environmental Impacts:** The implementation of the land use policy will not increase the probability of upset within the planning area. Increased development within the planning area will subject both lives and property to both flood-related and seismic hazards. Much of the undeveloped areas to the southern portion of the planning area is located in a well defined flood plain created by numerous intermittent streams draining the mountainous area to the south and east.

A second major area of concern is related to seismic hazards present within the region. An Alquist-Priolo Special Study Zone is located in the planning area and, according to State law, the City must adopt procedures for reviewing and approving permits for new development located within the zone. Local governments are required to follow policies and criteria established by the State Mining and Geology Board and the findings of the State Geologist. Before the City can approve a project within the designated Alquist-Priolo Special Studies Zone, the applicant must submit a geotechnical report prepared by a registered geologist describing any possibility of surface rupture. If the City finds that no hazard exists, it can waive the requirement for a geotechnical report, though approval from the State Geologist must be first obtained.

**Mitigation Measures:** The following policies, identified in Table 18, will serve as mitigation measures for any adverse impacts related to major upset.

TABLE 18  
GENERAL PLAN RISK OF UPSET  
MITIGATION MEASURES

Element	Policies
Community Development Element	All objectives and policies
Hazards Element	All policies



#### **4.0 ALTERNATIVES TO THE PROPOSED PLAN**

During the course of the General Plan's preparation, City staff and the Planning Commission considered several land use plan alternatives. The alternatives involved minor variations in land use policy. Of the many alternatives considered, the one selected (proposed land use policy) represents the City's vision of a balanced, integrated community.

While large portions of the planning area are undeveloped, much of this area is subject to various environmental constraints which severely limit the type and intensity of potential future development. The constraints, which are described in the Hazards Element and Technical Report, include the Mojave River, flood plains and other drainage areas, fault zones, utility easements, steep and unstable hillsides, and areas with few, if any, public services (eg. streets, utilities, etc.). In the remaining large potentially developable vacant areas, it is impossible to accurately define or predict future land uses except in very general terms. Many of these areas are the subject of specific plan studies which will identify the range of desired land uses and assess various land use options.

In developed portions of the city land use patterns are well established and the preferred land use policy does not propose significant changes to this pattern. The alternatives considered also do not differ substantially from the proposed policy or existing land use patterns. Three alternatives are described below.

##### **Alternative A: No Project**

The No Project alternative assumes that the city builds out as prescribed by existing zoning ordinance and zoning map. The No Project alternative has been analyzed where appropriate throughout the EIR. Implementation of proposed land use policy would result in similar utility consumption and air quality. Vehicle circulation and land use compatibility concerns are more directly addressed by the proposed General Plan. Implementation of proposed land use policy may be considered a mitigation measure against the effects of unchecked long-term growth. Proposed land use policy is seen to be environmentally superior to existing policy.

##### **Alternative B: Mixed-Use Land Use Designations**

Alternative B would designate large primarily vacant areas, most of which are located adjacent to Lenwood Road, for mixed-use development rather than the Specific Plan designation of the proposed plan. While the ultimate development of this will include a variety of uses, it is impossible to accurately predict and, thus, plan at the General Plan level for the future uses of these areas. Rather than arbitrarily establish land uses, the proposed General Plan makes use of the Specific Plan process to provide detailed Plan and Zoning guidelines. Such guidelines can be both responsive to future development while at the same time providing direction and preventing incompatibility between divergent uses.







Build-out of the Specific Plan areas is not anticipated to occur within the 15 to 20 year lifetime of the plan. The use of the Specific Plan appears to be an environmentally superior mechanism for managing growth than a more general mixed-use General Plan designation.

#### **Alternative C: "Desert Living" as a Holding Designation**

Early in the planning process, the use of the lowest density residential designation, Desert Living (2 dwelling units per acre maximum), was considered for all large vacant portions of the planning area. The assessment of potential impacts using such a designation would be less than the specific plan, neighborhood residential, and recreational opportunity designations ultimately assigned to these areas. However, using Desert Living as a holding category presents an artificial view of the range and intensity of potential future land use. Large portions of the vacant areas are likely to develop with a mix of commercial and industrial uses, especially along Lenwood Road and Interstate 15.

Using residential designations in areas which are most suited for future residential development, and specific plan designations for areas subject to commercial and industrial development, was viewed as a more accurate guide to future development than a blanket holding designation. The use of the City's goals to support a strong and diversified industrial base and to encourage development of distinct retail commercial centers.



## 5.0 ANALYSIS OF LONG-TERM EFFECTS

### 5.1 Analysis of Cumulative and Long-Term Impacts

Cumulative Impacts: The California Environmental Quality Act Guidelines (CEQA) define cumulative effects as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." The Guidelines further note that the individual effects can be the various changes related to a single project or the change involved in a number of other closely related past, present, and reasonable foreseeable future projects (Section 15355).

The State CEQA Guidelines define "significant effect" as a substantial adverse change in any of the physical conditions within the area affected by the proposed project. The impacts are not considered "significant" if the potential effects can be reduced to acceptable levels through the implementation of mitigation measures.

A project may result in significant effect which cannot be mitigated. In these instances, approval of the project by the City or Agency will require a "Statement of Overriding Consideration". This document is a public statement made by the Lead Agency which indicates that the benefits associated with the implementation of the proposed project outweigh the adverse environmental effect.

Long Term-Effects: The primary effect of the General Plan on the long-term productivity of the environment will be the commitment of the area to urban uses. The proposed General Plan is intended to plan for development of the City's recreational, commercial, industrial and residential uses.

Additional development in the area will consume nonrenewable resources during the construction and life of the proposed uses. During construction, the use of building materials and energy resources will be largely irreversible and irretrievable. During the life of the plan, irretrievable resources consumed will include substantial amounts of energy, water, and other natural resources. Public facilities and services will need to be expanded to serve the project area as indicated in the General Plan.

The public investment required to build the proposed public improvements and the private investment required to build industrial, commercial and residential uses will commit future generations to urban uses of the area. As a result, future generations will experience the environmental consequences of the development and also receive the beneficial impacts.

The adoption and implementation of the goals and policies of the Barstow General Plan will represent a commitment of the entire planning area to urban uses. The development of the planning area as proposed will preclude other development options for the life of the structures.



Any long-term environmental effects would be related to proposed changes in land use that would contribute to any of the following:

1. Land Use - The land use plan may result in a long-term transition in selected areas from vacant land to urbanized residential and commercial development. These changes could be considered a substantial alteration of the present vacant use in the undeveloped areas.
2. Population - Construction activities resulting from future development will accommodate an increase in the permanent and daytime population of the Planning Area.
3. Transportation/Circulation - Increased development of residential commercial, and industrial land uses with implementation of the General Plan will add additional traffic to the circulation system beyond current levels.
4. Air Quality - The additional vehicular traffic in the area will emit pollutants which will deteriorate the air quality in the region. However, air quality impacts are expected to be mitigated by the year 2005 due to improved vehicles and stricter controls and standards by the year 2005.
5. Housing - The General Plan provides for an expansion of the housing stock in certain areas of the City over existing levels in response to the anticipated rise in population.
6. Energy and Utilities - The more intense land uses and larger population will result in the consumption of greater amounts of energy and increase the demands on utilities, particularly electricity and natural gas. The conservation measures proposed in the General Plan in addition to the implementation of goals and policies in the Natural Resources Element will serve to reduce the significance of these impacts.
7. Noise - More intense land uses and greater levels of vehicular traffic will combine to increase ambient noise levels in the Planning Area, particularly around major activity areas and along major traffic arterials.

Irreversible Impacts: All impacts associated with implementation of the General Plan are considered irreversible within a short-term time period. The implementation of the land use policy outlined in the General Plan will result in more intense development in certain areas while allowing development in areas that are currently vacant. Development in these districts will result in irreversible changes in the:

- ° Land use patterns;
- ° Volume and distribution of vehicular traffic;



- ° Air quality;
- ° Consumption of energy; and
- ° Ambient noise levels.

**5.2 Growth-Inducing Impacts** The General Plan does not so much induce growth as it accommodates and provides the mechanism to control it. The Community Development Element of the General Plan and the accompanying Element Technical Reports describe ongoing land use trends in the City of Barstow.

The infrastructure requirements of the increased population, coupled with the need to upgrade existing systems, could lead to indirect growth inducing effects. These include:

- ° The need for additional water and sewage collection/treatment facilities;
- ° Additional public facilities and services; and
- ° Circulation system improvements.

These impacts are expected to be covered in environmental documentation to be prepared when specific projects are proposed. Regular updating of the General Plan and EIR will greatly assist in the early identification of specific environmental concerns and mitigation measures.









INITIAL STUDY  
CITY OF BARSTOW

June 18, 1987

City of Barstow  
220 East Mountain View Street  
Barstow, California 92311  
(619) 256-3531

Consultants to the City

Cotton/Beland/Associates, Inc.  
Urban and Regional Planning  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104



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Environmental Information and  
Checklist Form

Supplemental Information:

- II. Description of the Proposed Project  
Project Location and Boundaries
- III. Description of Environmental Changes
- IV. Environmental Setting
- VI. Discussion of Environmental Evaluation



## INITIAL STUDY

### ENVIRONMENTAL INFORMATION AND CHECKLIST FORM

#### I. BACKGROUND

1. Name of Proponent City of Barstow
2. Address and Phone Number of Proponent:  
220 East Mountain View Street  
Barstow, CA 92311  
Attn: Paul Warner, Director of Planning  
(619) 256-3531
3. Date of Checklist: 6-18-87
4. Agency Requiring Checklist: City of Barstow,  
Department of Community Development
5. Name of Proposal, if applicable Barstow  
Comprehensive General Plan Update
6. Indicate number of the permit application (if any)  
for the development to which this form pertains:  
N/A
7. List and describe any other related permits and other  
public approvals required for this project, including  
those required by city, regional, state and federal  
agencies: Approval of General Plan
8. Existing zoning district: Includes all current zone  
classifications within the City's corporate  
boundaries and Sphere of Influence.
9. Proposed use of site for which this form is filed:  
Potential future development within the project  
area includes residential, commercial, industrial,  
public facilities, and mixed uses.

#### II. DESCRIPTION OF DEVELOPMENT (See Section II Attached)

1. Site size.
2. Square footage.
3. Number of floors of construction.





4. Amount of off-street parking provided.
5. Attach plans.
6. Proposed scheduling.
7. Associated developments.
8. Anticipated incremental development.
9. If residential, include the number of units, schedule of unit sizes, range of sale prices or rents, and type of household size expected.
10. If commercial, indicate the type, whether neighborhood, city or regionally oriented, square footage of sales area, and loading facilities.
11. If industrial, indicate type, estimated employment per shift, and loading facilities.
12. If institutional, indicate the major function, estimated employment per shift, estimated occupancy, loading facilities, and community benefits to be derived from the development.
13. If the development involves a variance, conditional use or rezoning application, state this and indicate clearly why the application is required.

### III. ENVIRONMENTAL CHANGES (See also Section III Attached)

Are the following items applicable to the project activity or its effects? Discuss below all items checked yes (attach additional sheets as necessary).

<u>YES</u>	<u>NO</u>	
<u>      </u>	<u>  X  </u>	1. Change in existing features of any bays, tide-lands, beaches, lakes or hills, or substantial alteration of ground contours.
<u>      </u>	<u>  X  </u>	2. Change in scenic views or vistas from existing residential areas or public lands or roads.
<u>  X  </u>	<u>      </u>	3. Change in pattern, scale or character of general area of project or development.



- ☒ 4. Significant amounts of solid waste or litter.
- ☒ 5. Change in dust, ash, smoke, fumes or odors in vicinity.
- ☒ 6. Change in ocean, bay, lake, stream or ground water quality or quantity, or alteration of existing drainage patterns.
- ☒ 7. Substantial change in existing noise or vibration levels in the vicinity.
- ☒ 8. Site on filled land or on slope of 10 percent or more.
- ☒ 9. Use of disposal of potentially hazardous materials, such as toxic substances, flammables or explosives.
- ☒ 10. Substantial change in demand for municipal services (police, fire, water, sewer, etc.).
- ☒ 11. Substantially increase fossil fuel consumption (electricity, oil, natural gas, etc.).
- ☒ 12. Relationship to larger development or series of developments.

#### IV. ENVIRONMENTAL SETTING (See Section IV Attached)

1. Describe the project or development site as it existed before, including information on topography, soil stability, plants and animals, and any cultural, historical or scenic aspects. Describe any existing structures on the site, and the use of the structures. Attach photographs of the site. Snapshots or polaroid photos will be accepted.
2. Describe the surrounding properties, including information on plants and animals and any cultural, historical or scenic aspects. Indicate the type of land use (residential, commercial, etc.), intensity of land use (one-family, apartment house, shops, department stores, etc.), and scale development (height, frontage, setback, rear yard, etc.). Attach photographs of the vicinity. Snapshots or polaroid photos will be accepted.



V. ENVIRONMENTAL IMPACTS

(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

	YES	MAYBE	NO
1. Earth. Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures?	_____	_____	<u>  X  </u>
b. Disruptions, displacements, compaction or overcovering of the soil?	<u>  X  </u>	_____	_____
c. Change in topography or ground surface relief features?	_____	<u>  X  </u>	_____
d. The destruction, covering or modification of any unique geologic or physical features?	_____	_____	<u>  X  </u>
e. Any increase in wind or water erosion of soils, either on or off the site?	_____	<u>  X  </u>	_____
f. Change in deposition or erosion of beach sands or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	_____	_____	<u>  X  </u>
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	<u>  X  </u>	_____	_____

CEQA Guidelines, California Office of Planning and Research,  
January, 1984.



	YES	MAYBE	NO
2. <b>Air.</b> Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?	<u>X</u>	<u>      </u>	<u>      </u>
b. The creation of objectionable odors?	<u>      </u>	<u>X</u>	<u>      </u>
c. Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?	<u>      </u>	<u>      </u>	<u>X</u>
3. <b>Water.</b> Will the proposal result in:			
a. Changes in currents, or the course or direction of water movements, in either marine or fresh waters?	<u>      </u>	<u>      </u>	<u>X</u>
b. Changes in absorption rates, drainage patterns or the rate and amount of surface runoff?	<u>X</u>	<u>      </u>	<u>      </u>
c. Alterations to the course or flow of flood waters?	<u>      </u>	<u>X</u>	<u>      </u>
d. Changes in the amount of surface water in any water body?	<u>      </u>	<u>      </u>	<u>X</u>
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	<u>      </u>	<u>      </u>	<u>X</u>
f. Alteration of the direction or rate of flow of ground waters?	<u>      </u>	<u>      </u>	<u>X</u>
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	<u>      </u>	<u>X</u>	<u>      </u>
h. Substantial reduction in the amount of water otherwise available for public water supplies?	<u>      </u>	<u>      </u>	<u>X</u>





	YES	MAYBE	NO
i. Exposure of people or property to water related hazards such as flooding or tidal waves?	_____	<u>X</u>	_____
j. Significant changes in the temperature, flow, or chemical content of surface thermal springs?	_____	_____	<u>X</u>
4. <b>Plant Life.</b> Will the proposal result in:			
a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	<u>X</u>	_____	_____
b. Reduction of the numbers of any unique rare or endangered species of plants?	_____	<u>X</u>	_____
c. Introduction of new species of plants into an area, or result in a barrier to the normal replenishment of existing species?	<u>X</u>	_____	_____
d. Reduction in acreage of any agriculture crop?	<u>X</u>	_____	_____
5. <b>Animal Life.</b> Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?	_____	_____	<u>X</u>
b. Reduction of the numbers of any unique, rare or endangered species of animals?	_____	<u>X</u>	_____
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	_____	_____	<u>X</u>
d. Deterioration to existing fish or wildlife habitat?	_____	<u>X</u>	_____



	YES	MAYBE	NO
6. <b>Noise.</b> Will the proposal result in:			
a. Increases in existing noise levels?	<u>X</u>	<u>      </u>	<u>      </u>
b. Exposure of people to severe noise levels?	<u>      </u>	<u>X</u>	<u>      </u>
7. <b>Light and Glare.</b> Will the proposal produce new light or glare?	<u>      </u>	<u>X</u>	<u>      </u>
8. <b>Land Use.</b> Will the proposal result in substantial alteration of the present or planned land use of an area?	<u>X</u>	<u>      </u>	<u>      </u>
9. <b>Natural Resources:</b> Will the proposal result in:			
a. Increase in the rate of use of any natural resources?	<u>      </u>	<u>X</u>	<u>      </u>
b. Substantial depletion of any nonrenewable natural resource?	<u>      </u>	<u>      </u>	<u>X</u>
10. <b>Risk of Upset.</b> Will the proposal involve:			
a. A risk of an explosion or the release of hazardous substances (including but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?	<u>      </u>	<u>X</u>	<u>      </u>
b. Possible interference with an emergency response plan or an emergency evacuation plan?	<u>      </u>	<u>      </u>	<u>X</u>
11. <b>Population.</b> Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?	<u>X</u>	<u>      </u>	<u>      </u>
12. <b>Housing.</b> Will the proposal affect existing housing, or create a demand for additional housing?	<u>X</u>	<u>      </u>	<u>      </u>



	YES	MAYBE	NO
13. <b>Transportation/Circulation.</b> Will the proposal result in:			
a. Generation of substantial additional vehicular movement?	<u>X</u>	<u>      </u>	<u>      </u>
b. Effects on existing parking facilities, or demand for new parking?	<u>X</u>	<u>      </u>	<u>      </u>
c. Substantial impact upon existing transportation systems?	<u>X</u>	<u>      </u>	<u>      </u>
d. Alterations to present patterns of circulation or movement of people and/or goods?	<u>X</u>	<u>      </u>	<u>      </u>
e. Alterations to waterborne, rail or air traffic?	<u>      </u>	<u>      </u>	<u>X</u>
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	<u>      </u>	<u>      </u>	<u>X</u>
14. <b>Public Services.</b> Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?	<u>X</u>	<u>      </u>	<u>      </u>
b. Police protection?	<u>X</u>	<u>      </u>	<u>      </u>
c. Schools?	<u>X</u>	<u>      </u>	<u>      </u>
d. Parks or other recreational facilities?	<u>X</u>	<u>      </u>	<u>      </u>
e. Maintenance or public facilities, including roads?	<u>X</u>	<u>      </u>	<u>      </u>
f. Other governmental services?	<u>      </u>	<u>X</u>	<u>      </u>
15. <b>Energy.</b> Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?	<u>      </u>	<u>      </u>	<u>X</u>



	YES	MAYBE	NO
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	_____	<u>  X  </u>	_____
16. <b>Utilities.</b> Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?	_____	<u>  X  </u>	_____
b. Communications systems?	_____	<u>  X  </u>	_____
c. Water?	<u>  X  </u>	_____	_____
d. Sewer or septic tanks?	<u>  X  </u>	_____	_____
e. Storm water drainage?	<u>  X  </u>	_____	_____
f. Solid waste and disposal?	_____	<u>  X  </u>	_____
17. <b>Human Health.</b> Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?	_____	_____	<u>  X  </u>
b. Exposure of people to potential health hazards?	_____	_____	<u>  X  </u>
18. <b>Aesthetics.</b> Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of any aesthetically offensive site open to public view?	_____	<u>  X  </u>	_____
19. <b>Recreation.</b> Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	_____	_____	<u>  X  </u>
20. <b>Cultural Resources.</b>			
a. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?	_____	<u>  X  </u>	_____





	YES	MAYBE	NO
b. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	_____	_____	<u>  X  </u>
c. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?	_____	_____	<u>  X  </u>
d. Will the proposal restrict existing religious or sacred uses within the potential impact area?	_____	_____	<u>  X  </u>
 <b>21. Mandatory Findings of Significance.</b>			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	_____	<u>  X  </u>	_____
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	_____	_____	<u>  X  </u>
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.	<u>  X  </u>	_____	_____



YES      MAYBE      NO

- d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

\_\_\_\_\_   X   \_\_\_\_\_

**III. DISCUSSION OF ENVIRONMENTAL EVALUATION**  
(See Section VI attached)

**IV. DETERMINATION**  
(To be completed by the Lead Agency)

On the basis of this initial evaluation:

\_\_\_\_\_ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

\_\_\_\_\_ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on the attached sheets have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

  X   I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date   6/18/87  

Paul R. Secord  
(Signature)

Name:   Paul R. Secord,  

Title:   Consultant to the City



## Description of the Proposed Project

The General Plan project under consideration by the City of Barstow includes the following actions:

- 1) Approval of the Comprehensive General Plan by the City of Barstow. The General Plan provides guidance for the development of approximately 24,570 acres of land. Of the 14,010 acres within the Barstow corporate limits, the General Plan designates approximately 6,190 acres single-family residential, (Desert Zoning and Neighborhood Residential), approximately 230 acres multi-family residential (Urban Residential), 210 acres of commercial uses, 1,210 acres of industrial uses, and 5,130 acres of open space, specific plan, agricultural and recreational acres are also included. Approximately 990 acres of the project area is freeway right-of-way. The plan also permits for schools, parks, and other public facilities.

Residential densities and commercial and industrial building areas are based on the General Plan. This plan will be further refined during the General Plan review process. Based on an average of 3 dwelling units per acre, it is estimated that the project area may ultimately contain 18,570 new and existing single-family residential units. Based on an average of 15 dwelling units per acre, it is estimated that the project area may ultimately contain 4,200 new and existing multi-family units.

Commercial uses within the project area may consist of such uses as general commercial, office commercial, commercial center, business park, village commercial, or mixed use. Building area or floor area ratios between these uses may vary. Based on the General Plan, it is estimated that the project area may ultimately contain as much as 2 million square feet of new and existing office development, and as much as 4.5 million square feet of new and existing commercial development.

Light industrial land use designations may include uses as light industry, office, or research and development use. Some mixed use commercial/industrial uses may also be considered in this category. Based on average site coverage standards of 50%, the General Plan may include an estimated 6 million square feet of building space in the light industrial land use designation.

Transportation/visitors serving commercial uses could potentially result in 1 million square feet of new development.



- 2) Upgrading of existing water, sewer, and storm drainage facilities within the public right-of-way as necessary to create an environment to encourage development. This may also include the installation of new water and sewer lines, and storm drainage facilities. The planned location of new and improved roads to accommodate development where appropriate and necessary is also included in the project.
- 3) Approval of private developers plans including conditional use permits, zone changes, or other permits required to implement the General Plan.
- 4) Preparation of Specific Plans to refine land use policies within specified target areas.

Figure A-1, on the following page, shows the location of the proposed project. Figure A-2 illustrates preliminary land use policy concepts.







BARSTOW COMPREHENSIVE GENERAL PLAN PROJECT

Environmental Changes Description  
from Section III

3. Change in pattern, scale, or character of general area of project or development.

The proposed project, over the lifetime of the General Plan, proposes increased intensity and development of various proposed and existing land uses in accordance with local and regional plans. The proposed project would result in alterations of current development patterns through expanded development of existing vacant and agricultural land. However, development plans are considered a logical expansion of existing uses and would not result in a significant change in the general character of the area.

9. Use of, or disposal of, potentially hazardous materials, such as toxic substances, flammables or explosives.

With a growing list of materials considered toxic or hazardous by State and Federal agencies, there is the potential for some commercial or light industrial uses to store or utilize these materials during normal operations. However, these materials are regulated by state and county agencies, and their use or risk is not considered to be greater than existing similar uses.

10. Substantial change in demand for municipal services (police, fire, water, sewer, etc.)

The proposed project would result in increased development in accordance with local and regional plans and would result in increased requirements for police and fire protection, and improvements or additions to existing water and sewer systems.

11. Substantially increase fossil fuel consumption (electricity, oil, natural gas, etc.)

Construction, employment, and housing developed under the General Plan policies would result in increased consumption of fossil fuels.

12. Relationship to larger development or series of developments.



The project area encompasses approximately \_\_\_\_\_ acres of which \_\_\_\_\_ acres is the City's corporate area and \_\_\_\_\_ acres is within the City's Sphere of Influence. The General Plan is considered a long term plan and any improvements to the water, sewer, or transportation systems would be phased throughout the life of the plan.

*Please fill in  
the blanks  
↑*



## V. ENVIRONMENTAL SETTING

The "study area" considered in the General Plan includes all of the land area presently within the corporate boundaries of the City of Barstow and unincorporated areas immediately adjacent to the City. These unincorporated areas are presently under the jurisdiction of San Bernardino County though have been designated as being within the City's "Sphere of Influence". Consideration of these unincorporated areas in this General Plan Update is crucial since the Sphere of Influence identifies County areas that may be subject to future annexation. The unincorporated areas within the Sphere of Influence considered as part of the Barstow planning area include the communities of Lenwood, Grandview, Barstow Heights, North Barstow and East Barstow.

The entire land area presently included within the City's Sphere of Influence is divided into five planning areas. These areas are based on current development patterns or physical features. Figure F-1 illustrates the location of these planning areas, each of which has been named to provide a convenient method for identification. The individual planning areas are described below.

**North Barstow** - This area includes all the land within the Sphere of Influence north of the Mojave River. This planning area includes scattered residential development located northwest of State Highway 58. In addition, much of the area within the historic flood plain and is involved in agricultural production.

**Central Barstow** - The Central Barstow planning area includes most of the older portions of the City north of I-15 and south of the Mojave River. The central business district, the railroad classification yard, and many older neighborhoods are located within this planning area.

**Lenwood** - The Lenwood planning area includes the unincorporated communities of Lenwood and Grandview. The vast majority of the land within this planning area remains undeveloped.

**South Barstow** - This planning area encompasses the area south of I-40 and east of "O" Street. Included in this planning area is the unincorporated community of Barstow Heights.





**East Barstow** - The Nebo planning area begins at the eastern end of the corporate City limits and includes all of the U.S. Marine Corps Logistics Base to the east line of the rifle range.

Existing land uses within the planning area are divided into five broad categories or designations. These categories include the following: (1) residential, (2) commercial, (3) industrial, (4) public facilities, and (5) open space.

**Residential** - Residential land uses are subdivided into categories that generally reflect the density of existing residential development. These designations emphasize the characteristics of existing development rather than the zoning or general plan designations which are concerned with the allowable or "preferred" uses. These categories include rural residential, single-family, multiple-family, and mobile-home park.

The "rural residential" category concerns those areas where sparse or large lot residential development has occurred. Examples of this type include the sparsely developed subdivisions located in Barstow Heights and other incorporated areas south of I-15.

Single-family residential development is characterized by those residential neighborhoods or subdivisions that are completely developed or approaching "build-out". The majority of the land within the City designated as residential is in this category. Much of the "older" neighborhoods within the corporate boundaries of the City as well as scattered subdivisions in the periphery of existing development approaching "build-out" are categorized as single-family residential.

Apartments and condominium developments are included in the multiple-family development category. Multiple-family development is generally located in the Central and South Barstow planning areas.

The mobile-home parks are included in a separate and distinct category to reflect the unique character of this type of development. Residential development in this category is characterized by subdivisions or "parks" devoted exclusively to mobile homes or manufactured housing.

**Commercial** - The commercial land use designation refers to a wide range of retailing, administrative, and service-related activities. Existing commercial development in the City of Barstow may be described in terms of three types of development patterns.





The first type of commercial development pattern is commonly referred to as "strip-commercial". Development of this type is characterized by continuous commercial development along a major roadway that may extend for several miles. Much of the land area adjacent to Main Street extending from LaVerne Avenue in the west continuing eastward to the point where Main Street merges with I-40 is categorized as strip commercial. This commercial strip is approximately five miles in length and includes the central business district or "downtown".

A second pattern is characterized by large concentrations of commercial activities at strategically located centers. Examples of this type of development pattern include centers located along Main Street, east of the central business district.

Finally, the third commercial development pattern is characterized by small modes of "highway commercial" activities located in small clusters at strategic intersections or freeway interchanges. Activities located at these "nodes" generally cater to motorists traveling to and from points outside the planning area.

**Industrial** - This category is characterized by industrial activities located in the general vicinity of Main Street in the Central Barstow planning area. A second smaller concentration of industrial development is located in the South Barstow planning area at the junction of the I-40 and I-15 freeways.

**Rail Facilities** - Barstow has traditionally been a rail center for east-west trains connecting central and southern California with Arizona and Nevada. The tracks are used by the Union Pacific and Atchison, Topeka, and Santa Fe railroads. In addition, Santa Fe operates a classification yard and a repair shop. The classification yards and repair shop are located north of Main Street from Jasper Road to Yucca Avenue.

**Public/Quasi-Public** - This category of land use includes a wide array of different activities including schools, City and County Government facilities, and other public and institutional uses. Parks are considered as open space.

**Open Space** - The open space within the planning area has been subdivided into four subcategories: Mojave River flood plain, subdivided vacant land, undeveloped vacant land, and public parks.

The flood plain category refers to land that should not be developed due to significant flood hazards or other natural characteristics. Much of the areas subject to periodic flooding are located in the well-defined flood plain of the Mojave River.



Substantial portions of the planning area have been subdivided though development has yet to occur. Open space land in this category is considered to be in transition from the previous undeveloped state to some form of urban land use. This category differs from the residential category of "very low density/open space development" in that the former describes land that has not yet been developed and remains in its natural state while the latter consists of streets and scattered development. Most large tracts of land in this category are located on the periphery of the developed portion of the planning area. Other undeveloped land included in this category has not yet been subdivided.

The final category of open space is concerned with land permanently set aside for recreational purposes. This category includes municipal recreation facilities operated by the Parks and Recreation District. The total area of land exclusively devoted to recreational open space is 102 acres.

**Military** - The U.S. Marine Corps Logistics Base, Nebo Annex, is located in the Nebo planning area. This facility includes base headquarters, post exchange, recreational facilities, and military housing. In addition, the base rifle range was acquired in 1955 and is located 1/2 mile south east of the Nebo Annex. The City of Barstow will have no authority over land use within the military reservation.



## VI. DISCUSSION OF ENVIRONMENTAL EVALUATION CHECKLIST FORM

### 1. Earth

a. through g. - The General Plan itself will not directly result in any change in earth or geologic conditions. However, its policies will control the density and type of development permitted. Barstow has hillside areas in several portions of the City with slopes greater than 35%. Mud flows, debris flows, rock slides, and soil failures could occur along the steeper slopes, if grading associated with development disturbs them.

### 2. Air

a. - The proposed General Plan allows for a buildout population greater than the current General Plan. This increase in population will result in an increase in vehicular traffic, which may significantly affect ambient air quality.

b. and c. - The proposed General Plan will not result in the creation of objectionable odors or the alteration of air movement, moisture, or temperature, or any change in the climate directly. However, the development which it envisions may result in these changes.

### 3. Water

a. and c. through e. - No substantial changes are anticipated in the course or direction of water movements, alteration in flow of flood waters, or the amount of surface water in any body of water.

b. - Because of the increase in potential buildout population, there will be increased construction, which may result in changes in surface runoff.

f. and g. - If there is a change in the surface runoff (see b. above), a change in the direction or rate of flow or quantity of ground waters may also occur.

h. - Because of the potential increase in buildout population, there may be a substantial increase in domestic water demand.

i. - The proposed General Plan will not result in exposure of people or property to water related hazards such as flooding.





#### 4. Plant Life

a. and b. - Increased population density in the area may result in a reduction in the diversity of species or number of a species of plants.

There are no known rare or endangered plants in the City.

c. - The proposed General Plan will not result in the introduction of new species of plants or in a barrier to the normal replenishment of existing species.

d. - Agriculture uses exist within the project area. Increased development would result in the reduction of agriculture land in the area. However, urbanization in the project area is in accordance with local and regional plans, and this impact is considered to be less than significant.

#### 5. Animal Life

a. through c. - The proposed General Plan is not anticipated to result in a change in the diversity of species, or numbers of any species of animals. No known rare or endangered species of animals are known to exist in the City. The desert tortoise (*Gopherus agassizii*), which is not a Federally-protected species, is considered a sensitive species by the State. No new species of animals will be introduced into the area, nor will the proposed General Plan result in a barrier to the migration or movement of animals.

d. - Unless development in the hillside areas is carefully controlled, deterioration to existing wildlife habitats could result.

#### 6. Noise

a. and b. - The development proposed in the General Plan will result in increased noise levels in the City which may be significant. Residents along major arterials in the City could be exposed to severe noise levels because of increased vehicular traffic.

#### 7. Light and Glare

With increased population and concomitant new construction, there may be new sources of light and glare.





## 8. Land Use

The proposed General Plan represents trends in development and land use that already exist in the City.

## 9. Natural Resources

a. - Development envisioned in the proposed General Plan may result in an increase in the use of nonrenewable resources.

## 10. Risk of Upset

a. through b. - The proposed General Plan will not involve a risk of an explosion or the release of hazardous substances, nor will it interfere with an emergency response plan or an emergency evacuation plan. In fact, it proposes strengthening these safety precautions.

## 11. Population

The proposed General Plan may result in a slight decrease in population over that which would be allowed by the current General Plan.

## 12. Housing

Any population increase will create a demand for additional housing in the City.

## 13. Transportation/Circulation

a. through f. - Planned commercial and industrial development and the potential population increase may generate substantial additional vehicular movement and create demand for additional parking, alter circulation patterns, have an impact on existing transportation systems and increase traffic hazards.

## 14. Public Services

a. through g. - Full development envisioned in the proposed General Plan will call for some increase in police and fire protection services, as well as libraries, parks and recreation facilities. Depending upon the age distribution of the future population, there may be an increased need for schools. Increased population may also increase maintenance costs of public facilities, including roads.



## 15. Energy

a. through b. - Full development under the proposed General Plan may result in the use of significant amounts of fuel or energy and an increase in demand for existing sources of energy.

## 16. Utilities

Full development under the proposed General Plan may result in a need for alterations in water, sewer, storm water drainage, and solid waste disposal systems.

## 17. Human Health

a. and b. - The proposed General Plan will not result in the creation of any health hazard or potential health hazard or exposure of people to potential health hazards.

## 18. Aesthetics

The proposed General Plan includes a Community Design Element that addresses scenic vistas and views, as well as urban design policies.

## 19. Recreation

Full development under the proposed General Plan may result in increased demand for recreation facilities.

## 20. Cultural Resources

a. through d. - The Harvey House and Barstow's train station are listed on the National Register of Historic Places. In addition, there is an Indian Petroglyph site located near the crossing of 1st Street and the Mojave River.

## 21. Mandatory Findings of Significance

The proposed project is a long-term plan and is expected to improve the long-term potential of the project area by providing a framework and policy guide to necessary public services and improvements and allowing development to continue into the future.



This General Plan, together with the other utility construction and land development projects required for the development of the area in accordance with regional plans, have the potential to significantly change the natural and man-made environment of the area.









DRAFT

NOTICE OF PREPARATION

TO: \_\_\_\_\_  
(Responsible Agency)

FROM: City of Barstow  
(Agency)

\_\_\_\_\_  
\_\_\_\_\_  
(Address)

220 E. Mt. View Street  
Barstow, CA 92311  
(Address)

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL  
IMPACT REPORT

The City of Barstow will be the Lead Agency and will prepare an Environmental Impact Report for the Project identified below. We need to know the views of your Agency as to the scope and content of the environmental information which is germane to your Agency's statutory responsibilities in connection with the proposed Project. Your Agency will need to use the EIR prepared by our Agency when considering your permit or other approval for the Project.

The Project description, location, and the probably environmental effects are contained in the attached materials. A copy of the Initial Study XX is, \_\_\_\_\_ is not, attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this Notice.

Please send your response to Paul Warner, Planning Director at the address shown above. We will need the name for a contact person in your Agency.

PROJECT TITLE: Barstow Comprehensive General Plan Update

DATE: 6/22/87

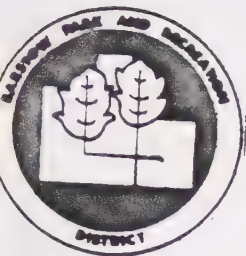
Signature Paul Secord

Title Paul Secord,  
Consultant to the City

Telephone (818) 791-7682



# BARSTOW PARK AND RECREATION DISTRICT RECEIVED



AUG 12 1987

CITY OF BARSTOW  
COMMUNITY DEVELOPMENT

FIRST DISTRICT SUPERVISOR

John Joyner

ADVISORY COMMISSION

Ted Baca

Cora Harper

Laura Lovato

Morgan Ray

Ken Ziemer

August 6, 1987

DIRECTOR

David B. Meserve

Mr. Paul Warner  
Planning Director  
City of Barstow  
220 E. Mt. View St.  
Barstow, CA 92311

Dear Mr. Warner,

Barstow Park and Recreation District is in receipt of the "Notice of Preparation of a Draft Environmental Impact Report" for the City of Barstow's General Plan Update.

Having received the material received, I see no concerns on behalf of our District. BPRD was represented by myself and members of the Advisory Commission during study sessions held by the City. We are sufficiently aware of the intent and scope of the proposed general plan and understand the potential for impact on the District.

Our own Master Plan is also in the process of being studied for updating. As it stands now, it calls for cooperation with the City and all other public agencies to meet the needs of the community as it continues to grow and develop.

Please feel free to contact me if you have further questions or if I may be of additional assistance.

Sincerely,

David B. Meserve



## DEPARTMENT OF TRANSPORTATION

DISTRICT 8, P.O. BOX 231  
SAN BERNARDINO, CALIFORNIA 92402

RECEIVED



JUL 17 1987

July 15, 1987

CITY OF BARSTOW  
COMMUNITY DEVELOPMENT

Paul Warner  
Planning Department  
City of Barstow  
220 E. Mt. View St.  
Barstow, CA 92311

Dear Mr. Warner:

This is in response to the Notice of Preparation of a Draft Environmental Impact Report for the Barstow comprehensive General Plan Update.

We would appreciate the opportunity to review and comment on the proposed DEIR in order to evaluate possible impacts to the transportation system, particularly Interstate 15 and 40.

A detailed traffic study should be prepared for this project which would include existing and future average daily traffic (ADT) volumes, traffic generation (including peak hour), traffic distribution, intersection capacity utilization (ICU) analysis along with current and projected capacities of local roads, State highways and freeways that might be impacted.

Consideration should also be given to the cumulative effects that continued development in the area will have on the transportation system from a "worst case" viewpoint. Discussion of the impacts to the transportation system should include traffic growth, traffic safety, drainage, and those associated with the construction, maintenance, and operation of any anticipated highway improvements. Mitigation for traffic impacts should consider the use of carpooling, vanpooling, public transit, the reservation of areas for park and ride facilities, and accommodations for pedestrians and bicycles. Any industrial development should consider the use of flex-time work scheduling and rideshare coordinators. Costs related to any transportation improvements, potential for funding, and sources of funds should be discussed.

Should any work be required within State highway right of way, Caltrans would be a responsible agency and may require that certain mitigation measures be provided as a condition of permit issuance.

We urge early and continuous liaison with Caltrans on proposed plans as they affect State highways.



Paul Warner  
July 15, 1987  
Page 2

If you have any questions, please contact Lynda Smith at (714) 383-4541.

Very truly yours,

A handwritten signature in cursive script that reads "Morgan Christie for". The signature is written in dark ink and is positioned above the typed name of the signatory.

GUY G. VISBAL  
Chief, Transportation Planning  
Branch A







JUL 23 1987

COTTON, BELAND

**SOUTHERN CALIFORNIA WATER COMPANY**

3825 WEST SIXTH STREET • LOS ANGELES, CALIFORNIA 90076-0893 • TELEPHONE (213) 251-3600

July 20, 1987

City of Barstow  
270 E. Mt. View Street  
Barstow, California 92311

Attn: Mr. Paul Secord

Reference: Notice of Preparation of Draft EIR -  
Barstow Comprehensive General Plan Update

Gentlemen:

The Draft Environmental Impact Report for the Barstow Comprehensive General Plan should include an estimate of future water demands and a description of the physical facilities and institutional arrangements that will be needed to meet those demands. I can be reached at (213)251-3624 for information regarding this subject.

Very truly yours,

SOUTHERN CALIFORNIA WATER COMPANY

William McDonald  
Chief Engineer

WMD/hs

**RECEIVED**

JUL 21 1987

CITY OF BARSTOW  
COMMUNITY DEVELOPMENT



JUL 27 1987

COTTON/BELAND

# LAND MANAGEMENT DEPARTMENT

NORTH DESERT OFFICE • 15505 Civic Drive • Victorville, CA 92392

COUNTY OF SAN BERNARDINO  
ENVIRONMENTAL  
PUBLIC WORKS AGENCY



**RECEIVED**

JUL 23 1987

CITY OF BARSTOW  
COMMUNITY DEVELOPMENT

JOHN N. JAQUSS  
Land Management Director

OFFICE OF PLANNING  
Sharon W. Hightower  
County Planning Officer

OFFICE OF SURVEYOR  
Claude D. Tomlinson, L.S.  
County Surveyor

OFFICE OF BUILDING AND SAFETY  
Larry L. Schoelkopf, P.E.  
County Building Official

July 21, 1987

Paul Warner, Planning Director  
City of Barstow  
220 E. Mt. View Street  
Barstow, CA 92311

Dear Mr. Warner:

Thank you for the opportunity to review the Initial Study prepared for the Barstow General Plan Update. The Environmental Impact Report should increase our awareness of potential impacts to the 24,570 acres covered under your update.

Our initial response is as follows:

1. Under Public/Quasi Public lands administered by various agencies should be identified (ex. How many acres are administered by the Bureau of Land Management?).
2. The Desert Tortoise is a candidate for Federal Listing on the Endangered and Threatened Wildlife List and has the same protection as a listed species. It is also fully protected under California State Law. The Barstow General Plan Area is primary Desert Tortoise habitat.
3. Significant deposits of paleontological materials are known to exist from Lenwood to Stoddard Valley Road and in Barstow Heights.
4. Archaeological deposits probably occur along the Mojave River and are known to exist in the Lenwood and Barstow Heights area of your study area. We recommend that you contract a paleontological and archaeological overview as a part of your General Plan Update.

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BARBARA GRANT  
LARRY ADKINS

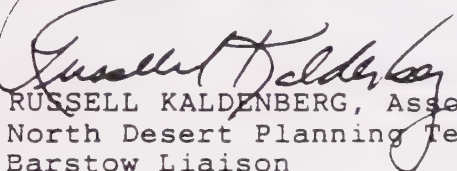


Paul Warner  
July 21, 1987  
Page 2

Please let us know if we can be of any assistance to you. We look forward to working with you in the development of your General Plan update.

Sincerely,

EPWA/LAND MANAGEMENT DEPARTMENT  
OFFICE OF PLANNING



RUSSELL KALDENBERG, Associate Planner  
North Desert Planning Team  
Barstow Liaison

RK:cv

cc: Alden Sievers



PACIFIC GAS AND ELECTRIC COMPANY

P.O. BOX 1060, BARSTOW, CALIFORNIA 92311 - (619) 253-2991

July 28, 1987

RECEIVED

City of Barstow  
220 E. Mountain View Street  
Barstow, California 92311  
Attention: Mr. Paul Warner

JUL 29 1987

CITY OF BARSTOW  
COMMUNITY DEVELOPMENT

Mr. Warner,

Pipe Line Operations has received the Notice of Preparation of a Draft Environmental Impact Report for Barstow's Comprehensive General Plan Update. This project will affect our two 34" natural gas transmission lines which traverse the Barstow Zone of Influence as outlined in the report. We have the following comments and restrictions.

1. No additions to or diminishing of our existing protective cover will be allowed without the prior written approval of PGandE.
2. There will be restrictions placed on the size and type of grading equipment to be used over our pipeline. Calculations for our allowable external pipe stresses will be determined on an individual basis for each proposed crossing.
3. All proposed utility structures crossing our 34 inch pipeline must maintain a minimum clearance of 12 inches. All parallel structures must maintain a minimum clearance of 8 feet.
4. A consent for common use will be required for crossing our easement which will be prepared by our Company.
5. No trees or deep rooted shrubs are to be planted within 10 feet of the centerline of our gas lines.
6. No power augers or trenchers are to be operated within the gas line easement without a Pipe Line Operations employee present at the job site.
7. You are requested to submit your final plans to this Department for review and approval prior to the commencement of any construction activities within our gas line easements.





July 28, 1987

We appreciate the opportunity to review your Draft Environmental Impact Report which could avoid conflicts and delays during construction. If you have any questions or require additional information, please contact Mr. Jeff McCarthy of my staff at (619) 253-2991 or writing at the letterhead address.

A handwritten signature in cursive script, reading "Robert A. Cook".

Robert A. Cook  
Southern Area Manager  
Pipe Line Operations



DEPARTMENT OF TRANSPORTATION/  
FLOOD CONTROL/AIRPORTS

325 East Third Street • San Bernardino, CA 92415-0835 • (714) 387-2800



COUNTY OF SAN BERNARDINO  
ENVIRONMENTAL  
PUBLIC WORKS AGENCY

MICHAEL G. WALKER  
Director

July 27, 1987

RECEIVED file: 4-500/1.00  
8 (CTY)-2.03

JUL 29 1987

City of Barstow  
220 E. Mt. View Street  
Barstow, CA 92311

CITY OF BARSTOW  
COMMUNITY DEVELOPMENT

Attention: Mr. Paul Warner  
Planning Director

Re: Zone 4, Barstow Drainage  
Barstow Comprehensive  
General Plan Update

Gentlemen:

Reference is made to your transmittal with accompanying initial study of a draft environmental impact report and requesting the District's review and comments. The area to be covered by the report includes both the Barstow incorporated area and the surrounding areas in the Cities Sphere of Influence. The report will be used to develop potential future uses within the project area.

We are enclosing a copy of the District's Barstow Drainage Master Plan (File PM-D1-70/1) and a copy of the Barstow Drainage Plan (File PM-D1-68) showing existing District facilities and proposed drainage facilities. Many of the existing District facilities are not adequate to contain major storm flows. In addition to those facilities shown on the plans there are many natural drainage courses through out the area which are local in nature and should be the subject of a local comprehensive storm drain plan. The subject of local drainage, including the matter of overtaking interim improved major drainage facilities with contemplated rezoning development, should be included in the draft EIR.

Our recommendations would be the EIR address the following subject matter:

1. Portions of the site lie within designated flood hazard areas as determined by the Federal Insurance Administration (F.I.A.). Any development or grading within designated floodways shall not raise base flood elevations. Development within the flood fringe (overflow areas) shall meet the latest flood insurance requirements including, but not limited to, elevation, compaction and erosion protection of building pads and flood proofing utilities. It is assumed the appropriate local governmental agency will, at a minimum, enforce the latest F.I.A. requirements.

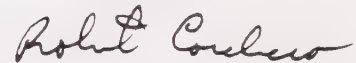


Letter to the City of Barstow  
July 27, 1987  
Page 2

2. Increased development may generate additional storm flows and adversely affect downstream properties and existing drainage facilities. Improvement of existing facilities or additional infrastructure may be needed.

Should you have any further questions concerning this matter, please feel free to contact the undersigned at (714) 387-2515.

Very truly yours,



ROBERT W. CORCHERO, Chief  
Water Resources Division

RWC:HWS:mjs

cc: Barstow City Engineer w/encl.





UNITED STATES MARINE CORPS  
MARINE CORPS LOGISTICS BASE  
BARSTOW, CALIFORNIA 92311

AUG 5 1987

COTTON, BELAIR

IN REPLY REFER TO:

5090

B100

31 JUL 1987

Mr. Paul Warner  
Planning Director, City of Barstow  
220 East Mountain View Street  
Barstow, California 92311

Dear Mr. Warner:

I have recently received a Notice of Preparation of a Draft Environmental Impact Report for the Barstow Comprehensive General Plan Update. Since the area comprising the Marine Corps Logistics Base is included in the report, my staff has reviewed the initial study with great interest. Thank you for the consideration in forwarding the Notice to me.

Review of the plan has raised a number of issues of critical importance to the Marine Corps Logistics Base. The one point which requires the most attention is that a mobilization of the Base would have a direct impact on several areas addressed in the study. Mobilization would result in a substantial increase in the number of military personnel assigned to the Base and, in turn, this population increase would create a greater demand on municipal services, the local housing market and utilities, all of which are addressed in the study.

The Base's requirements for a supply of potable water will remain high, even in the absence of mobilization. Considering this requirement, it is advisable that all planning for the provision of water services to new areas of development, in the Barstow area, be conducted under the assumption that the Base has a substantial requirement for potable water and that this requirement is subject to a sudden, drastic increase in the event of mobilization. Moreover, I hope that awareness of the possibility of mobilization is helpful in your planning efforts for other municipal services, as well as in your preparation of the Environmental Impact Report.

The future development of the Barstow area has special interest for the Marine Corps Logistics Base; please continue to keep me informed and involved in the planning process. I have designated Lieutenant Colonel John H. Robertus as this Base's point of contact, telephone 577-6753.

Sincerely,

AUG 4 1987

*J. E. Sniffen*  
J. E. SNIFFEN

Brigadier General, USMC  
Commanding

COMMUNITY DEVELOPMENT





CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—  
LAHONTAN REGION1092 LAKE TAHOE BOULEVARD  
P.O. BOX 9428  
SOUTH LAKE TAHOE, CALIFORNIA 95731-2428

RECEIVED



AUG 28 1987

August 27, 1987

Mr. Paul Warner  
City of Barstow  
220 East Mountain View Street  
Barstow, CA 92311CITY OF BARSTOW  
COMMUNITY DEVELOPMENTNOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE  
BARSTOW COMPREHENSIVE GENERAL PLAN UPDATE

Dear Mr. Warner:

We have received the notice of preparation of a DEIR and reviewed the initial study for the above-referenced project. The project consists of the approval of the Updated Comprehensive General Plan by the City of Barstow. The General Plan provides guidance for the development of approximately 14,010 acres of land within the Barstow city limits and approximately 10,560 acres of land outside the city limits. We have the following comments.

The initial study states that the upgrading of existing sewer and storm drainage facilities may be necessary due to increased growth and development in the project area. The DEIR should discuss how services will be provided to future developments and what plans and/or studies will need to be made in order to upgrade these facilities.

You should note the Regional Board policy is to require secondary-level treatment of wastewater for all new development which exceeds a gross density of two equivalent dwelling units (EDU) per acre. This policy also applies to domestic wastewater discharges from commercial and industrial developments with wastewater discharge volumes exceeding two EDU per acre density (500 gal/day/acre based on 250 gal/day/EDU). Developments exceeding the two EDU per acre density for domestic wastewater discharges and developments with non-domestic wastewater discharges will need to provide a higher degree of treatment than is achieved by the use of septic tanks.

The initial study also states that the development allowed by the project could result in changes in the characteristics of the existing groundwater underlying the project area. The DEIR should address the cumulative impacts on groundwater and should present evidence regarding the existing groundwater quality and distribution.

If you have any questions or comments regarding the above matter, please call Cindi Mitton or Ken Carter in our Victorville office at (619) 241-6583.

Yours truly,

O.R. BUTTERFIELD  
EXECUTIVE OFFICERA handwritten signature in cursive script that reads "Ken Carter".  
Ken Carter  
Senior Engineer



The City of  
**BARSTOW**  
California

October 22, 1987

Keith Lee  
State Clearinghouse  
1400 Tenth Street, Room 121  
Sacramento, CA 95814

Re: Barstow General Plan and Environmental Impact Report

In accordance with your conversation with Paul Secord of Cotton-Beland Associates on October 21, 1987, I hereby request a 30-day review period pursuant to Section 15106 of the California Environmental Quality Act.

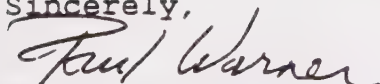
Copies of the Environmental Impact Report and General Plan were mailed to the Clearinghouse by Cotton-Beland Associates. They were also distributed to all other affected and responsible agencies on September 28, 1987.

I have enclosed another copy of the Notice of Completion. If you have any questions, feel free to contact us.

Paul Warner  
City of Barstow  
220 E. Mountain View  
Barstow, CA 92311  
(619) 256-3531

Paul Secord (Consultant)  
Cotton-Beland Associates  
1028 North Lake #107  
Pasadena, CA 91104  
(818) 791-7682

Sincerely,

  
Paul Warner  
City Planner

/j



**APPENDIX C**

**NOTICE OF COMPLETION**

State of California  
Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814

Barstow General Plan  
**Project Title**

General Plan for the City and Planning Area of the City of Barstow  
**Project Location - Specific**

City of Barstow  
**Project Location - City**

County of San Bernardino  
**Project Location - County**

**Description of Nature, Purpose, and Beneficiaries of Project**

This is a General Plan Update program and Master Environmental Assessment/Environmental Impact Report.

City of Barstow  
**Lead Agency**

Community Development  
**Division**

220 East Mountain View (City Hall) and 340 East Buena Vista (Library)  
**Address Where Copy of EIR is Available**

Barstow Ca 92311

September 28 to November 12, 1987  
**Review Period**

Paul Secord (Cotton-Beland Associates) (818) 791-7682  
**Contact Person**

**Area Code/Phone/Extension**

Paul Warner (City of Barstow) (619) 256-3531 extension 205

**Revised March 1988**





## NOTICE OF COMPLETION AND ENVIRONMENTAL DOCUMENT TRANSMITTAL FORM

SCH # \_\_\_\_\_

1. Project Title: Barstow General Plan  
 2. Lead Agency: City of Barstow 3. Contact Person: Paul Warner  
 3a. Street Address: 220 East Mountain View 3b. City: Barstow  
 3c. County: San Bernardino 3d. Zip: 92311 3e. Phone: (619) 256-3531  
 PROJECT LOCATION 4. County: San Bernardino 4a. City/Community: Barstow  
 4b. Assessor's Parcel No. \_\_\_\_\_ 4c. Section \_\_\_\_\_ 4d. Top \_\_\_\_\_ 4e. Range \_\_\_\_\_

5a. Cross Streets: Entire City & Planning Area - Interstate 15 & 40 5b. For Rural, Nearest Community: \_\_\_\_\_

6. Within 2 miles: a. State Bay 58 b. Air ports None c. Rail ways ATSF d. Water ways None

7. DOCUMENT TYPE  
 CIOA  
 01. NOI 06. NOI 02. Early Cons 07. NOI 03. Map Doc 08. NOI 04. X Draft EIR  
 Supplement/  
 05. Subsequent EIR  
 (Prior SCH No.: \_\_\_\_\_)  
 MEA  
 09. NOI 11. Draft EIR 10. FOUO 12. EA  
 OTHER  
 13. Joint Document 14. Final Document 15. Other

8. LOCAL ACTION TYPE  
 01. X General Plan Update 02. New Element 03. General Plan Amendment 04. Master Plan 05. Annexation 06. Specific Plan 07. Community Plan 08. Redevelopment 09. Rezone 10. Land Division  
 (Subdivision, Parcel Map, Tract Map, etc.) 11. Use Permit 12. Waste Mgmt Plan 13. Cancel Ag Preserve 14. Other

9. DEVELOPMENT TYPE  
 01. Residential: Units Acres 02. Office: Sq. Ft. Acres Employees 03. Shopping/Commercial: Sq. Ft. Acres Employees 04. Industrial: Sq. Ft. Acres Employees 05. Water Facilities: MGD 06. Transportation: Type 07. Mining: Mineral 08. Power: Type Watts 09. Waste Treatment: Type 10. OCS Related 11. Other

10. TOTAL ACRES: 24,571 (entire Planning Area) 11. TOTAL JOINT CATEGORIES \_\_\_\_\_

12. PROJECT IMPACT DISCLOSED IN DOCUMENT:  
 01. X Aesthetic/Visual 08. X Flooding/Drainage 15. X Septic Systems 23. X Water Quality  
 02. X Agricultural Land 09. X Geologic/Seismic 16. X Sewer Capacity 24. X Water Supply  
 03. X Air Quality 10. X Jobs/Housing Balance 17. X Social 25. Wetland/Riparian  
 04. X Archaeological/Historical 11. X Minerals 18. X Soil Erosion 26. X Wildlife  
 05. Coastal Zone 12. X Noise 19. X Solid Waste 27. X Growth Inducing  
 06. X Economic 13. X Public Services 20. X Toxic/Hazardous 28. X Incompatible Landuse  
 07. X Fire Hazard 14. X Schools 21. X Traffic/Circulation 29. X Cumulative Effects  
 22. X Vegetation 30. Other  
 13. ESTIMATED (approx) Federal \$ \_\_\_\_\_ State \$ \_\_\_\_\_ Total \$ \_\_\_\_\_  
 14. PROJECT LAND USE AND ZONING: \_\_\_\_\_

## 15. PROJECT DESCRIPTION:

This is a General Plan Update Program and MEA/EIR  
 (Master Environmental Assessment/Environmental Impact Report)

*Paul Warner*  
 Paul Warner

16. SIGNATURE OF LEAD AGENCY REPRESENTATIVE: \_\_\_\_\_ DATE: 9/28/87





**LIST OF PERSONS/AGENCIES  
CONSULTED DURING THE  
REVIEW PROCESS AND TO  
WHOM COPIES OF THE  
GENERAL PLAN AND MEA/EIR  
WERE DISTRIBUTED**



Southern California Water Co.  
3625 West Sixth Street  
Los Angeles, CA 90020  
213-251-3600  
Roscoe Anthony

Southern California Edison  
30553 Rimrock Road  
Barstow, CA 92311  
619-252-6405  
Jim Warren

Bureau of Land Management  
831 Barstow Road  
Barstow, CA 92311  
619-256-3591  
Alden Sievers

San Bernardino County Flood  
Control District  
825 East Third  
San Bernardino, CA 92415  
714-387-2800  
Robert Corchero, Chief  
Water Resources District

San Bernardino County Fire  
Protection District  
861 Barstow Road  
Barstow, CA 92311  
619-256-2254  
Dave Mathews, Chief

Pacific Gas and Electric  
(High Pressure Transmission  
Lines) Pipeline Operatoins  
So. Division Headquarters  
35863 Fairview Road  
Hinkley, CA 92347  
619-253-2925

Barstow Chamber of Commerce  
270 East Virginia Way  
Barstow, CA 92311  
619-256-8617

Southwest Gas Corporation  
751 East Main Street  
Barstow, CA 92311  
619 256-3571  
Dick Morris

Barstow Park and Recreation  
850 Barstow Road  
Barstow, CA 92311  
619-256-5661  
Dave Meserve

Barstow Development Corporation  
220 East Mountain view  
Barstow, CA 92311  
619-256-3531  
Jim Gilliam, President

Barstow Community College  
2700 Barstow Road  
Barstow, CA 92311  
619-252-2611

San Bernardino County  
(Victorville Office)  
15505 Civic Drive  
Victorville, CA 92392  
619-243-8171  
Jim Birckhead

United States Army  
Fort Irwin, CA 92310  
Major Paul Luellig  
Public Affairs Officer  
619-386-4511

California Water Quality  
Control Board  
Lahontan Region  
15371 Bonanza  
Victorville, CA 92392  
619-245-6583

Daggett Community Services Dist.  
35588 East Highway 66  
Daggett, CA 92327

Local Agency Formation Comm.  
175 West Fifth St. 2nd Floor  
San Bernardino, CA 92415  
714-383-2611  
James Roddy, Exec. Director

Mojave Water Agency  
(Regional Water AGENCY)  
16849 D Street  
Victorville, CA 92392  
619-245-7717  
John Edson, Manager



Barstow Unified School District  
551 South Avenue H  
Barstow, CA 92311  
619-256-0611  
Eugene Feerick

Continental Telephone Company  
16071 Mojave Drive  
Victorville, CA 92392  
619-245-0545  
Paul Seelye, Analyst

County of San Bernardino  
Special District  
157 West Fifth, 2nd Floor  
San Bernardino, cA 92415-0450

United States Marine Corps  
Marine Corps Logistics Base  
Barstow, CA 92311  
CWO Jerry Smith, Public Affairs  
Officer 619-577-6426

Cal Trans (District 8)  
Box 231  
San Bernardino, CA 92403  
(714-383-4595  
Tremain Downey



# RESPONSES TO COMMENTS RECEIVED







#424  
11/23/87

City of Barstow  
General Plan Environmental Review

Comments and Responses to the Draft Environmental Impact Report

### Introduction

All comments received on the Draft Environmental Impact Report are included in their entirety following this summary of the comments and the responses.

**Comment:** State Department of Food and Agriculture (11/6/87). The Draft EIR does not adequately address agricultural preservation.

**Response:** There are no prime agricultural lands within the Barstow Planning Area. All current agricultural activities, which total approximately 200 acres, less than 1% of the Planning Area, are limited to alfalfa production. General Plan land use policies support the continuation of agriculture. Development proposals within agricultural areas, including Sphere of Influence areas, are recommended to require findings of land use compatibility with adjacent properties. Limitations on the availability of water currently constrain agriculture as a viable use. This condition is expected to continue into the future.

**Comment:** State Public Water Supply Branch (11/2/87). The Plan does not adequately address water quality and quantity, especially concerns related to total dissolved solids (TDS).

**Response:** Quantity - The MWA has asked the State to adjudicate water rights in the Barstow region. Further, the City continues to support the efforts of the Mojave Water Agency to establish a water management plan for the Mojave River. The water table overdraft problem was discussed on page NRTR-6 of the General Plan.

Quality - The City of Barstow sewage disposal systems meet the criteria of the Lahontan Water Quality Control Board. The City has recently installed a major sewer system in Lenwood and is continuing to improve sewage disposal systems. A recent policy of the Lahontan Water Quality Control Board will mitigate upstream discharge of septic tank effluent from future development. This is intended to mitigate further increases in TDS's.



**Comment:** Southern California Water Company (11/9/87). Recommended changes to statements in the Draft EIR and General Plan pertaining to water pressure, fire flow requirements, well fields, and maximum water demand.

**Response:** The statement concerning the number of well fields (four rather than two as reported in the General Plan), gallons per minute capacity of the wells, water usage in Nebo and water pressure are noted. The text of the appropriate portions of the General Plan will be modified to reflect this information when the final copies of the Plan are printed. The concern pertaining to fire flows described in the General Plan is based on statements made by representatives of the Barstow Fire District.



**COMMENTS AND  
RECOMMENDATIONS RECEIVED  
ON THE MEA/EIR**



## OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET  
SACRAMENTO, CA 95814

November 16, 1987

Paul Warner  
City of Barstow  
220 East Mountain View  
Barstow, CA 92311Subject: Barstow General Plan  
SCH# 87102602

Dear Mr. Warner:

The State Clearinghouse submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is closed and the comments of the individual agency(ies) is(are) enclosed. Also, on the enclosed Notice of Completion, the Clearinghouse has checked which agencies have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the package is not in order, please notify the State Clearinghouse immediately. Your eight digit State Clearinghouse number should be used so that we may reply promptly.

Please note that recent legislation requires that a responsible agency or other public agency shall only make substantive comments on a project which are within the area of the agency's expertise or which relate to activities which that agency must carry out or approve. (AB 2583, Ch. 1514, Stats. 1984.)

These comments are forwarded for your use in preparing your final EIR. If you need more information or clarification, we suggest you contact the commenting agency at your earliest convenience.

Please contact John Keene at 916/445-0613 if you have any questions regarding the environmental review process.

Sincerely,

A handwritten signature in dark ink, appearing to read "David C. Nunenkamp".

David C. Nunenkamp  
Chief  
Office of Permit Assistance

Enclosures

cc: Resources Agency









DEPARTMENT OF HEALTH SERVICES  
ENVIRONMENTAL HEALTH DIVISION

ENVIRONMENTAL DOCUMENT ROUTE SLIP

ENVIRONMENTAL HEALTH DIVISION  
Public Water Supply Branch

TOXIC SUBSTANCES CONTROL DIVISION  
Hazardous Waste Management Branch

Sacramento Region - Bert Ellsworth  
8455 Jackson Road  
( ) Sacramento, CA 95826  
(8-497-4034)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

Central Coastal Region - Dick McMillan  
2151 Berkeley Way, Room 458  
( ) Berkeley, CA 94704  
(8-571-2158)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

South Coastal Region - Tim Gannon  
530 E. Montecito St., Suite 102A  
( ) Santa Barbara, CA 93102  
(805-963-8616)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

Desert Region - Chet Anderson  
1836 So. Commercenter Cir., Ste. B  
San Bernardino, CA 92408  
(8-670-4328)

01/30 Date Rec'd 10/30 Date Forwarded

*copy of Comment Attached*

Local Environmental Hlth. Services Branch

Sacramento Office - Bill Gore  
714 P St., Room 600  
( ) Sacramento, CA 95814  
(8-492-2040)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

Regional Office - Jim Allen  
4250 Power Inn Road  
( ) Sacramento, CA 95926  
(8-497-3145)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

Berkeley - Dwight Hoenig  
2151 Berkeley Way, Room 119  
( ) Berkeley, CA 94704  
(8-571-2043)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

Los Angeles - Angelo Bellomo  
107 South Broadway, Room 7128  
(2) Los Angeles, CA 90012  
(8-640-2380)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

HEALTH PROTECTION DIVISION

Epidemiological Studies Section  
Attn: Michael Lipsett  
2151 Berkeley Way, Room 515  
( ) Berkeley, CA 94704  
(8-571-2918)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

OTHER EHD BRANCHES

Radiological Health Branch  
Attn: Joe Ward  
1232 Q Street  
( ) Sacramento, CA 95814  
(8-492-2073)

\_\_\_\_ Date Rec'd \_\_\_\_ Date Forwarded

From: Public Water Supply Branch  
714 P Street, Room 692  
Sacramento, CA 95814  
8-473-6111

DATE RECEIVED IN EHD 10-27-87  
SCH NUMBER 87102602  
TITLE Barlow Sewer Plan

DUE DATE 11-19-87

If you have comments, send them directly to the Public Water Supply Branch or NOPs which you respond to directly. PLEASE FORWARD THE DOCUMENTS ASAP TO EXT REVIEWER TO ASSURE THAT DUE DATES ARE MET.

IF YOU HAVE ANY QUESTIONS OR CANNOT MEET THE DUE DATE, PLEASE CALL (916) 23-6111/ATSS 8-473-6111. THANK YOU FOR YOUR COOPERATION.

NOTE: ALL COMMENTS ARE TO BE PREPARED FOR THE BRANCH CHIEF'S SIGNATURE





# Memorandum

To : Mr. Keith Lee  
State Clearinghouse  
Office of Planning and Research  
1400 Tenth Street, Room 121  
Sacramento, California 95814

Date : November 6, 1987

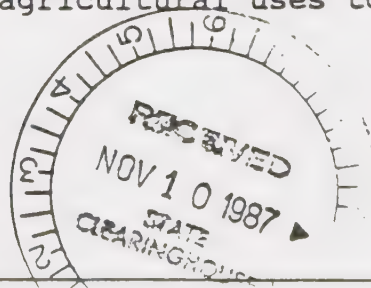
Place : Sacramento

From : Department of Food and Agriculture --1220 N Street, Room 104  
Sacramento, CA 95814

Subject: SCH Nos. 87102602--Barstow General Plan

The California Department of Food and Agriculture (CDFA) has reviewed the Draft Environmental Impact Reports (DEIR) concerning the above referenced project and has the following comments and recommendation.

1. According to page 6 of the Initial Study, this project would result in the reduction in acreage of agricultural crops. However, this impact is not discussed except to dismiss it as insignificant on page 22 of the Initial Study. According to CEQA, Appendix G (y), conversion or impairment of productivity of prime agricultural land is a significant effect. Is any of the land in the planning area considered prime?
2. The Specific Plan boundary incorporates 24,570 acres while the City of Barstow is comprised of 14,010 acres. Assumption 20 on page CD-3 states that current agricultural areas should be preserved and protected. The map on page CD-5 designates all land in the planning area except for 200 acres to urban uses. According to the map on page CDTR-10, this represents a reduction of agricultural land in the area. Is any of the land currently designated as agriculture in production? How many acres of agricultural land would be converted under this plan? How does local agricultural activity contribute to the local economy?
3. It is possible that urban development will occur in close proximity to agriculture operations. How will conflicts such as noise, dust, odor, chemical use, trespassing, littering, and vandalism between these potentially incompatible land uses be mitigated? Measures such as right-to-farm ordinances and open space buffers should be considered. Other mitigation measures might include encouragement of infill development and phasing of development to allow agricultural uses to continue for as long as possible.

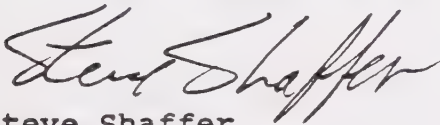




Mr. Keith Lee  
November 6, 1987  
Page 2

4. Urban development according to this plan will also occur on County land within the City's sphere of influence. Is this proposed plan compatible with the existing county general plan and zoning ordinances? Urban development could put pressure to convert agricultural land in close proximity to the development. Mitigation measures such as entering into agricultural preserve contracts or similar zoning designations should be considered.

While the CDFA does recognize that the right of local governments to develop and implement land use policy, we are compelled to comment on the conversion of agricultural land. This DEIR fails to define existing agricultural activities within the planning area and the effects of the Barstow General Plan on these activities. Therefore we cannot recommend approval of the DEIR.



Steve Shaffer  
Research Analyst  
(916) 322-5227







NOV 13 1987

SOUTHERN CALIFORNIA WATER COMPANY

COTTON/BELAND

3625 WEST SIXTH STREET • LOS ANGELES CALIFORNIA 90076-0893 • TELEPHONE (213) 251-3600

November 9, 1987

1. Paul 2  
2. 424.00

Cotton/Beland and Associates  
1028 North Lake Avenue - Suite 107  
Pasadena, California 91104

Gentlemen:

We have received a copy of the draft of the Barstow General Plan and would like to comment on those sections of the report that affect the water service to the City of Barstow and the surrounding area.

The first section that we would like to comment on is the Natural Resources Element, Section 3.1, shown on Page NRTR-6. In the last paragraph, there is mention that the water supply of Barstow comes from two well fields. Actually, there are at the present time four well fields.

The Infrastructure Element on Page INTR-14 makes a number of incorrect statements. We would suggest rewriting Section 4.1 and 4.2 as follows:

**SECTION 4.1**

Water supply system

The Southern California Water Company provides water to the City of Barstow. A map of the existing water supply system was obtained and used to prepare the attached plan of the existing major supply system, Fig. 8. The Public Utilities Commission of the State of California requires that water companies supply to their customers at pressures between 40 and 125 psi. With the exception of a few locations, the Barstow Water Distribution System meets these requirements. Facilities are planned that will correct the problem in the areas where pressures are not in this range.

Fire flow requirements are set by the Barstow Fire District. Fire flows are generally adequate in Barstow. They will be greatly improved in the downtown portion by a current project underway with the Southern California Water Company making changes in their pumping procedures. Additionally, a reservoir scheduled to be built in 1989 in the south portion of the City will improve the fire flows along Rimrock Road.



**Section 4.2**

Annual water usage in the Barstow System is approximately 1.15 acre-feet per customer per year or a total of 10,800 acre-feet including the Nebo Marine Base. Maximum day demand is estimated to be 2211 gallons per customer or 14,300 gallons per minute which includes 2000 gpm to the Nebo Marine Base.

The system is currently supplied by 20 wells with a total capacity of approximately 14,900 gallons per minute. An additional well is scheduled to be drilled and placed in service in the first quarter of 1988, and additional wells will be needed in future years to keep pace with the City's growth.


A revised copy of Figure 8 is enclosed.

The next section which needs a comment is the General Plan Environmental Impact Report dated August, 1987, Page 3-11, Section 3.5, Utilities. The statement regarding water service is generally accurate; however, the water supply and demand figures should be updated to include the Nebo demands.

Please call me at (213) 251-3624 if you need additional information.

Very truly yours,

SOUTHERN CALIFORNIA WATER COMPANY

  
William McDonald  
Chief Engineer

WMM/sam

L444/56A

cc: City of Barstow  
220 East Mountain View Street  
Barstow, California 92311

Attn: Tom Bell  
Attn: E. Wayne Lamoreaux, City Manager



## Memorandum

State Clearinghouse  
1400 Tenth Street  
Room 121  
Sacramento, CA 95814

Date : November 2, 1987  
Subject: SCH 87102602

from : PUBLIC WATER SUPPLY BRANCH  
1836 So. Commercenter Circle  
Suite B  
San Bernardino, CA 92408

We have reviewed the City of Barstow General Plan (SCH 87102602) and offer the following comments. The Plan does not adequately address potential and existing water quality and quantity problems in Barstow. Available water quality data indicates that the concentration of total dissolved solids (TDS) in the water produced by wells in the Barstow-Lenwood area is increasing and in some cases exceeds the secondary standards for TDS. In addition the plan does not address possible decreases in ground water quantity due to basin overdraft, nor does it address the availability of water for future growth.

If you have any questions concerning this matter, please contact Diana Barich in our San Bernardino District Office at (714) 383-4328.

Sincerely,

  
Chester E. Anderson, Chief  
Southern California Region





## 7.0 REFERENCES

### A. Project Consultants and Preparers of the EIR

1. Cotton/Beland/Associates  
Urban and Environmental Planning  
1028 North Lake Avenue, Suite 107  
Pasadena, California 91104

Principal:	R. Dale Beland, AIA, AICP
Project Manager:	Paul R. Secord
Planner:	Marc Blodgett





## STATE HAZARDOUS WASTE CONTROL LAW

California law provides comprehensive "cradle to grave" regulation of hazardous wastes ("HW"), within the general framework created in 1972 by the Hazardous Waste Control Law ("HWCL").<sup>3</sup> The HWCL has since been modified and supplemented by many additional pieces of legislation. The HWCL predated the analogous federal legislation, embodied in the Resource Conservation and Recovery Act of 1976 ("RCRA") -- which incorporates and expands a number of HWCL provisions. Similarly a number of the expansions of the HWCL have been incorporated into federal law through subsequent amendments to RCRA.

The California Department of Health Services ("DHS") is the state's lead agency implementing HWCL, and those provisions of RCRA which can be assumed by states that operate substantially equivalent programs. Between 1981 and January, 1986, DHS implemented RCRA provision under interim authorization from the United States Environmental Protection Agency ("EPA"), which is the national lead agency for RCRA. This interim authorization expired in January, 1986, but DHS continues to implement HWCL provisions under a reversion agreement with EPA, which has forborne to expand its own RCRA implementation program in California, while the state seeks final authorization. California allows county health departments the option to implement certain HWCL provisions regulating HW generators, under terms of Memoranda of Understanding ("MOUs") with DHS.

HWCL defines several HW categories. Hazardous Wastes are those which: cause increased mortality, serious irreversible illness or incapacitating reversible illness; or which pose substantial hazards to human health or the environment. DHS has issued regulations for determining HW, based on: toxicity; bioaccumulation; ignitability; reactivity; and corrosivity. Extremely Hazardous Wastes are those which would cause death, disabling personal injury or serious illness. Restricted Hazardous Wastes form a subclass for purposes of bans on land disposal, and include HW with cyanide, PCBs, etc. Infectious Wastes include laboratory and medical wastes or other wastes that may contain bacteria or viral agents.

The HWCL provides state regulation of "Existing HW facilities," which include "any structure, other appurtenances,

---

<sup>3</sup> Legislation: Health and Safety Code, Division 20, Chapter 6.5, Section 25100 et. seq. (HWCL). See also 42 U.S.C., Chapter 82, Section 6901 et. seq. (RCRA, HSWA, etc.).

Regulation: 22 California Administrative Code. See also 40 C.F.R., Chapter 1, Subchapter 1, Part 240, et. seq.



and improvements on the land, used for treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous wastes." HW Facilities are subject to a variety of reporting, construction standard, inspection, monitoring, and permit requirements. Since 1972, the general HWCL provisions have been supplemented by a variety of detailed specific programs addressed to particular classes of HW Facilities, including: Underground Storage Tanks (Sher, Cortese Bills); Toxic Pits, and Land Treatment Units (Katz Bills); HW disposal facilities (Roberti Bill); and solid waste disposal facilities containing HW (Calderon, Eastin Bills). These specialized programs are described in their own sections of this Matrix and Commentary.

HWCL and RCRA have provided for permits and inspections of facilities involved in the generation, and/or treatment, storage and disposal ("TSD") of hazardous wastes. HWCL provisions have always applied, at least in theory, to all such facilities; while RCRA did require all HW generators to register with EPA, most other federal provisions were limited to major facilities after 1976. RCRA requirements applied to "large" HW generators (over 1,000 kg per month), and to TSD facilities that stored either HW generated offsite, or stored onsite HW for 90 days or more. However, the Hazardous and Solid Waste Amendments of 1984 ("HWSA") extends TSD requirements to facilities generating over 100 kg per month.

In theory, DHS implementation of the HWCL includes not only exhaustive regulation of major generators and TSD facilities, but also less complex regulation of all other generators. However, because of staff and budget limitations, DHS regulation actually has been quite limited in most cases. Only major TSD facilities (which are also covered under the 1976 RCRA) are inspected routinely. Thousands of HW generators are addressed only when associated with a TSD, or in response to complaints.

In order to assure that small HW generators are indeed being regulated effectively, DHS's policy is to sign MOUs with individual county (and city) health departments, under which the local agencies establish direct permit and inspection programs. Most populous and/or industrial counties in California have now signed MOUs and developed local HW generator programs; as of September, 1987, twenty-two jurisdictions have signed MOUs. Because the MOUs do not provide for any state funding, local jurisdictions adopt local fee ordinances to finance their programs through fees charge to regulated HW generators.

HWCL and RCRA also regulate HW transportation. RCRA requires "manifests" of each HW shipment; California concur in this program, although the state manifest form does not follow precisely the EPA guidelines.



TABLE A-2

WASTE GROUPS LISTED BY CALIFORNIA  
WASTE CATEGORIES

<u>WASTE GROUP</u>	<u>CALIFORNIA WASTE CATEGORY</u>
WASTE OIL	221 WASTE OIL AND MIXED OIL 223 UNSPECIFIED OIL CONTAINING WASTE
HALOGENATED SOLVENTS	211 HALOGENATED SOLVENTS 741 LIQUIDS WITH HALOGEN. ORG. COMP. > 1000 MG/L
NON-HALOGENATED SOLVENTS	212 OXYGENATED SOLVENTS 213 HYDROCARBON SOLVENTS 214 UNSPECIFIED SOLVENT MIXTURES
ORGANIC LIQUIDS	133 AQUEOUS WITH TOTAL ORGANICS > 10% 134 AQUEOUS WITH TOTAL ORGANICS < 10 % 341 ORGANIC (NONSOLVENTS) LIQUIDS WITH HALOGENS 342 ORGANIC LIQUIDS WITH METALS 343 UNSPECIFIED ORGANIC LIQUID MIXTURES
PESTICIDES	231 PESTICIDE RINSE WATER 232 PESTICIDES AND PESTICIDE PRODUCTION WASTE PCBs &
DIOXINS	261 POLYCHLORINATED BIPHENYLS 731 LIQUIDS WITH PCBs > 50 MG/L 801 WASTE POTENTIALLY CONTAINING DIOXINS
OILY SLUDGES	222 OIL/WATER SEPARATION SLUDGE 352 OTHER ORGANIC SOLIDS 481 TETRAETHYL LEAD SLUDGE
HALOGENATED ORGANIC SLUDGES & SOLIDS	251 STILL BOTTOMS WITH HALOGENATED ORGANICS 351 ORGANIC SOLIDS WITH HALOGENS 451 DEGREASING SLUDGE 751 SOLIDS WITH HALOGEN. ORG. COMP. > 1000 MG/KG





WASTE GROUPCALIFORNIA WASTE CATEGORY

## NON-HALOGENATED ORGANIC

## 241 TANK BOTTOM WASTE

## SLUDGES &amp; SOLIDS

252 OTHER STILL BOTTOM WASTE  
321 SEWAGE SLUDGE  
471 PAPER SLUDGE/PULP  
491 UNSPECIFIED SLUDGE WASTE  
571 FLY ASH, BOTTOM ASH AND  
RETORT ASH

## DYE &amp; PAINT SLUDGES &amp; RESINS

271 ORGANIC MONOMER WASTE  
272 POLYMERIC RESIN WASTE  
281 ADHESIVES  
291 LATEX WASTE  
461 PAINT SLUDGE

## METAL-CONTAINING LIQUIDS

111 ACIDS WITH METALS  
121 ALKALINE WITH METALS  
132 AQUEOUS WITH METALS

## METAL-CONTAINING SLUDGES

## 171 METAL SLUDGE

## METAL-CONTAINING LIQUIDS

721 LIQUIDS WITH ARSENIC > 500  
MG/L  
722 LIQUIDS WITH CADMIUM >  
100MG/L  
723 LIQUIDS WITH CHROMIUM > 500  
MG/L  
724 LIQUIDS WITH LEAD > 500  
MG/L  
725 LIQUIDS WITH MERCURY > 20  
MG/L  
726 LIQUIDS WITH NICKEL > 134  
MG/L  
727 LIQUIDS WITH SELENIUM > 100  
MG/L  
728 LIQUIDS WITH THALLIUM > 130  
MG/L

## CYANIDE &amp; METAL LIQUIDS

711 LIQUIDS WITH CYANIDES >  
1000 MG/L

## NON-METALLIC INORGANIC LIQUIDS

112 ACID WITHOUT METALS  
113 UNSPECIFIED ACID  
122 ALKALINE WITHOUT METALS  
123 UNSPECIFIED ALKALINE  
131 AQUEOUS WITH REACTIVE  
ANIONS  
135 UNSPECIFIED AQUEOUS  
SOLUTION  
791 LIQUIDS WITH Ph < 2





WASTE GROUP

CALIFORNIA WASTE CATEGORY

NON-METALLIC INORGANIC SLUDGES

411 ALUM AND GYPSUM SLUDGE  
421 LIME SLUDGE  
431 PHOSPHATE SLUDGE  
441 SULFUR SLUDGE  
521 DRILLING MUD CONTAMINATED

SOIL

611 CONTAMINATED SOIL

MISCELLANEOUS WASTES

141 OFF-SPEC, AGED OR SURPLUS  
INORGANICS  
151 ASBESTOS-CONTAINING WASTE  
161 FLUID CATALYTIC CRACKER  
WASTE  
162 OTHER SPENT CATALYST  
172 METAL DUST  
161 OTHER INORGANIC SOLID WASTE  
311 PHARMACEUTICAL WASTE  
322 BIOLOGICAL WASTE OTHER THAN  
SEWAGE SLUDGE  
331 OFF-SPEC, AGED OR SURPLUS  
ORGANICS  
511 EMPTY PESTICIDE CONTAINERS  
> 30 GAL  
512 OTHER EMPTY CONTAINERS > 30  
GAL  
513 EMPTY CONTAINERS < 30 GAL  
531 CHEMICAL TOILET WASTE  
541 PHOTOCHEMICALS/  
PHOTOPROCESSING WASTE  
551 LABORATORY WASTE CHEMICALS  
561 DETERGENT AND SOAP  
- 581 GAS SCRUBBER WASTE  
591 BAGHOUSE WASTE  
612 HOUSEHOLD WASTES



TABLE A-3

CONVERSION OF CALIFORNIA WASTE CATEGORIES TO WASTE GROUPS

<u>CALIFORNIA WASTE CATEGORY</u>	<u>WASTE GROUP</u>
111 ACIDS WITH METALS	METAL-CONTAINING LIQUIDS
112 ACID WITHOUT METALS	NON-METALLIC INORGANIC LIQUIDS
113 UNSPECIFIED ACID	NON-METALLIC INORGANIC LIQUIDS
121 ALKALINE WITH METALS	METAL-CONTAINING LIQUIDS
122 ALKALINE WITHOUT METALS	NON-METALLIC INORGANIC LIQUIDS
123 UNSPECIFIED ALKALINE	NON-METALLIC INORGANIC LIQUIDS
131 AQUEOUS WITH REACTIVE ANIONS	NON-METALLIC INORGANIC LIQUIDS
132 AQUEOUS WITH METALS	METAL-CONTAINING LIQUIDS
133 AQUEOUS WITH TOTAL ORGANICS >10%	ORGANIC LIQUIDS
134 AQUEOUS WITH TOTAL ORGANICS <10 %	ORGANIC LIQUIDS
135 UNSPECIFIED AQUEOUS SOLUTION	NON-METALLIC INORGANIC LIQUIDS
141 OFF-SPEC, AGED OR SURPLUS ORGANICS	MISCELLANEOUS WASTES INORGANICS
151 ASBESTOS-CONTAINING WASTE	MISCELLANEOUS WASTES
161 FLUID CATALYTIC CRACKER WASTE	MISCELLANEOUS WASTES
162 OTHER SPENT CATALYST	MISCELLANEOUS WASTES
171 METAL SLUDGE	METAL-CONTAINING SLUDGES
172 METAL DUST	MISCELLANEOUS WASTES
161 OTHER INORGANIC SOLID WASTE	MISCELLANEOUS WASTES
211 HALOGENATED SOLVENTS	HALOGENATED SOLVENTS
212 OXYGENATED SOLVENTS	NON-HALOGENATED SOLVENTS
213 HYDROCARBON SOLVENTS	NON-HALOGENATED SOLVENTS
214 UNSPECIFIED SOLVENT MIXTURES	NON-HALOGENATED SOLVENTS
221 WASTE OIL AND MIXED OIL	WASTE OIL
222 OIL/WATER SEPARATION SLUDGE	OILY SLUDGES
223 UNSPECIFIED OIL CONTAINING WASTE	WASTE OIL
231 PESTICIDE RINSE WATER	PESTICIDES
232 PESTICIDES AND PESTICIDE PRODUCTION WASTE	PESTICIDES
241 TANK BOTTOM WASTE	NON-HALOGENATED ORGANIC SLUDGES & SOLIDS
251 STILL BOTTOMS WITH HALOGENATED ORGANICS	HALOGENATED ORGANIC SLUDGES & SOLIDS
252 OTHER STILL BOTTOM WASTE	NON-HALOGENATED ORGANIC SLUDGES & SOLIDS
261 POLYCHLORINATED BIPHENYLS	PCBs & DIOXINS



CALIFORNIA WASTE CATEGORYWASTE GROUP

271 ORGANIC MONOMER WASTE	DYE & PAINT SLUDGES & RESINS
272 POLYMERIC RESIN WASTE	DYE & PAINT SLUDGES & RESINS
281 ADHESIVES	DYE & PAINT SLUDGES & RESINS
291 LATEX WASTE	DYE & PAINT SLUDGES & RESINS
311 PHARMACEUTICAL WASTE	MISCELLANEOUS WASTES
321 SEWAGE SLUDGE	NON-HALOGENATED ORGANIC SLUDGES & SOLIDS
322 BIOLOGICAL WASTE OTHER THAN SEWAGE SLUDGE	MISCELLANEOUS WASTES
331 OFF-SPEC, AGED OR SURPLUS ORGANICS	MISCELLANEOUS WASTES
341 ORGANIC (NONSOLVENTS) LIQUIDS WITH HALOGENS	ORGANIC LIQUIDS
342 ORGANIC LIQUIDS WITH METALS	ORGANIC LIQUIDS
343 UNSPECIFIED ORGANIC LIQUID MIXTURES	ORGANIC LIQUIDS
351 ORGANIC SOLIDS WITH HALOGENS	HALOGENATED ORGANIC SLUDGES & SOLIDS
352 OTHER ORGANIC SOLIDS	OILY SLUDGES
411 ALUM AND GYPSUM SLUDGE	NON-METALLIC INORGANIC SLUDGES
421 LIME SLUDGE	NON-METALLIC INORGANIC SLUDGES
431 PHOSPHATE SLUDGE	NON-METALLIC INORGANIC SLUDGES
441 SULFUR SLUDGE	NON-METALLIC INORGANIC SLUDGES
451 DEGREASING SLUDGE	HALOGENATED ORGANIC SLUDGES & SOLIDS
461 PAINT SLUDGE	DYE & PAINT SLUDGES & RESINS
471 PAPER SLUDGE/PULP	NON-HALOGENATED ORGANIC SLUDGES & SOLIDS
481 TETRAETHYL LEAD SLUDGE	OILY SLUDGES
491 UNSPECIFIED SLUDGE WASTE	NON-HALOGENATED ORGANIC SLUDGES & SOLIDS
511 EMPTY PESTICIDE CONTAINERS > 30 GAL	MISCELLANEOUS WASTES
512 OTHER EMPTY CONTAINERS > 30 GAL	MISCELLANEOUS WASTES
513 EMPTY CONTAINERS < 30 GAL	MISCELLANEOUS WASTES
521 DRILLING MUD	NON-METALLIC INORGANIC SLUDGES
531 CHEMICAL TOILET WASTE	MISCELLANEOUS WASTES
541 PHOTOCHEMICALS/PHOTOPROCESSING WASTE	MISCELLANEOUS WASTES



551 LABORATORY WASTE CHEMICALS  
CALIFORNIA WASTE CATEGORY

561 DETERGENT AND SOAP  
571 FLY ASH, BOTTOM ASH AND RETORT  
    ASH  
581 GAS SCRUBBER WASTE  
591 BAGHOUSE WASTE  
611 CONTAMINATED SOIL  
612 HOUSEHOLD WASTES  
  
711 LIQUIDS WITH CYANIDES > 1000  
    MG/L  
721 LIQUIDS WITH ARSENIC > 500 MG/L  
722 LIQUIDS WITH CADMIUM > 100MG/L  
723 LIQUIDS WITH CHROMIUM > 500  
    MG/L  
724 LIQUIDS WITH LEAD > 500 MG/L  
725 LIQUIDS WITH MERCURY > 20 MG/L  
726 LIQUIDS WITH NICKEL > 134 MG/L  
727 LIQUIDS WITH SELENIUM > 100  
    MG/L  
728 LIQUIDS WITH THALLIUM > 130  
    MG/L  
731 LIQUIDS WITH PCBs > 50 MG/L  
741 LIQUIDS WITH HALOGEN. ORG.  
    COMP. > 1000 MG/L  
751 SOLIDS WITH HALOGEN. ORG.  
    COMP. > 1000 MG/KG  
791 LIQUIDS WITH Ph < 2  
  
801 WASTE POTENTIALLY CONTAINING  
    DIOXINS

MISCELLANEOUS WASTES  
WASTE GROUP

MISCELLANEOUS WASTES  
NON-HALOGENATED ORGANIC  
    SLUDGES & SOLIDS  
MISCELLANEOUS WASTES  
MISCELLANEOUS WASTES  
CONTAMINATED SOIL  
MISCELLANEOUS WASTES  
  
CYANIDE & METAL LIQUIDS  
  
METAL-CONTAINING LIQUIDS  
METAL-CONTAINING LIQUIDS  
METAL-CONTAINING LIQUIDS  
  
METAL-CONTAINING LIQUIDS  
METAL-CONTAINING LIQUIDS  
METAL-CONTAINING LIQUIDS  
METAL-CONTAINING LIQUIDS  
  
METAL-CONTAINING LIQUIDS  
  
PCBs & DIOXINS  
HALOGENATED SOLVENTS  
  
HALOGENATED ORGANIC  
    SLUDGES & SOLIDS  
NON-METALLIC INORGANIC  
    LIQUIDS  
PCBs & DIOXINS





TABLE E - 1  
GENERALIZED TREATMENT METHODS FOR EACH WASTE GROUP

WASTE GROUP	PRIMARY TREATMENT METHOD	ALTERNATIVE TREATMENT METHOD
Waste Oil	Oil Recovery	Incineration
Halogenated Solvents	Solvent Recovery	Incineration
Non-Halogenated Solvents	Solvent Recovery	Incineration
Organic Liquids	Other Recycling	Aqueous Organic Treatment
Pesticides	Aqueous Treatment- Organic	Other Recycling
PCBs & Dioxins	Incineration	
Oily Sludges	Oil Recovery	Incineration
Halogenated Organic Sludges & Solids	Incineration	Solvent Recovery
Non-Halogenated Organic Sludges & Solids	Incineration	Solvent Recovery
Dye & Paint Sludges & Resins	Incineration	Other Recycling
Metal-Containing Liquids	Aqueous Treatment - Metals/Neutralization	Other Recycling
Cyanide & Metal Liquids	Aqueous Treatment - Metals/Neutralization	Other Recycling
Non-Metallic Inorganic Liquids	Aqueous Treatment- Metals/Neutralization	
Metal Containing Sludges	Stabilization	Other Recycling
Non-Metallic Inorganic Sludges	Stabilization	Other Recycling
Contaminated Soil	Incineration	Other Recycling
Empty Containers	Other Recycling	
Off-Spec, Aged or Surplus Inorganics	Stabilization	Other Recycling
Asbestos-Containing Waste	Stabilization	
FCC Waste	Stabilization	Other Recycling
Other Spent Catalyst	Stabilization	Other Recycling
Metal Dust	Other Recycling	
Other Inorganic Solid Waste	Other Recycling	Stabilization
Pharmaceutical Waste	Stabilization	Incineration
Biological Waste Other That Sewage Sludge	Aqueous Treatment - Organic	Incineration
Off-Spec, Aged or Surplus Organics	Other Recycling	Stabilization
Chemical Toilet Waste	Stabilization	
Photochemicals/Photo Processing Waste	Other Recycling	Stabilization
Laboratory Waste Chemicals	Other Recycling	Stabilization
Detergent and Soap	Other Recycling	Stabilization
Gas Scrubber Waste	Aqueous Treatment - Metals/Neutralization	Stabilization
Baghouse Waste	Stabilization	
Household Wastes	Other Recycling	Stabilization



## ORDINANCE NO. 3105

AN ORDINANCE OF THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AMENDING THE COUNTY CODE BY DELETING PORTIONS OF DIVISIONS 1 THROUGH 6 OF TITLE 3, AND RESTATING VARIOUS REGULATORY PROVISIONS OF THE COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH SERVICES, COVERING: FOOD, DAIRIES, WATER, TOXICS, WASTE, VECTORS, HOUSING, RECREATION AND OTHER SUCH ENVIRONMENTAL HEALTH REGULATORY SUBJECTS.

The Board of Supervisors of the County of San Bernardino, State of California, does ordain as follows:

SECTION 1. The Board of Supervisors of the County of San Bernardino, State of California, ordains as follows:

(a) Existing provisions of Title 3, Divisions 1-6 of the San Bernardino County Code pertaining to Environmental Health programs when set out as part of the Department of Public Health's responsibilities are: (1) Inconsistent with the Board's previous transfer of environmental health and related programs to the Department of Environmental Health Services (DEHS) pursuant to Health and Safety Code § 1155.5 et seq.; and, (2) contain antiquated language inappropriate to current environmental health issues;

(b) Environmental health problems frequently transcend political boundaries and demand coordinated uniform enforcement efforts. With a uniform delivery of services approach throughout the County and in contract cities, DEHS can best assure the public comprehensive, coordinated, quality and cost effective programs of environmental health services. A uniform approach will allow the proper identification and prioritization of concerns, objective weighing of special interests, and effective focusing of resources and expertise to solve multifaceted problems while avoiding duplicate administrative overhead;

(c) The proposed uniform Environmental Health Code is the result of several years of research and study by DEHS in consultation with the Office of County Counsel and the incorporated cities within the County of San Bernardino. Those cities which so desire may adopt appropriate portions of the proposed uniform code, thus achieving the goal of a uniform delivery of environmental health services on a County-wide basis.

(d) Adoption of the proposed uniform Environmental Health Code will better protect the general public health, safety and welfare.

SECTION 2. The San Bernardino County Code is hereby amended by repealing: Sections 31.023, 31.025, 31.026, 31.027, 31.028, 31.029, 31.0210, 31.0211, 31.0212, 31.0213, 31.0214 of Chapter 2, Chapters 3, 4, 5, and 7 of Division 1, Title 3; Section 32.0511 of Chapter 5, Chapters 8 and 11 of Division 2, Title 3; Chapters 1, 2, 4 and 6 of Division 4; and Divisions 5, 6, and 8, Title 3.

SECTION 3. The San Bernardino County Code is hereby amended by restating the substance of those provisions repealed in foregoing Section 2, and existing Division 3, Title 3 to a new Division 3, Title 3 which shall be as follows:

### DIVISION 3. ENVIRONMENTAL HEALTH

#### Chapters:

1. Authority and Administration.
2. Permits and Hearing Procedures.
3. Public Nuisance Abatement.
4. Food Protection.
5. Dairies and Dairy Products.
6. Domestic Water Sources and Systems.
7. Hazardous Materials and Toxics Control.
8. Waste Management.
9. Insect, Rodent, and Other Vector Control.
10. Housing and Institutions.
11. Recreational Health.

#### Chapter 7

### HAZARDOUS MATERIALS AND TOXICS CONTROL

#### Article 1. General Provisions

#### Sections:

- |               |  |
|---------------|--|
| 33.071        | Authority.   |
| 33.072        | Administration, Violations, Remedies, and Penalties. |
| 33.073-33.079 | (Reserved)   |



## Article 2. Underground Storage of Hazardous Materials

### Sections:

- 33.0710 Existing Ordinance Continued.
- 33.0711 Authority.
- 33.0712 Definitions.
- 33.0713 Permits and Fees Required.
- 33.0714 Permit Application and Conditions.
- 33.0715 Inspections.
- 33.0716 Confidential Matter.
- 33.0717 Storage Tank Requirements.
- 33.0718 Monitoring and Reporting.
- 33.0719 Modifying and Terminating Permits.
- 33.0720 Repair of Storage Tanks.
- 33.0721 Storage Tanks Not in Use.
- 33.0722 Violations, Remedies, and Penalties.
- 33.0723-0729 (Reserved)

## Article 3. Hazardous Waste Generators

### Sections:

- 33.0730 Authority.
- 33.0731 Definitions.
- 33.0732 Permits Required.
- 33.0733 Enforcement Activities.
- 33.0734 Requirements — General.
- 33.0735 Specific Requirements (Reserved).
- 33.0736 Limited Quantity Generators (Reserved).
- 33.0737 Recycler Permit Variance (RPV) (Reserved).
- 33.0738 Infectious Waste Generators (IWG).
- 33.0739 Violations, Remedies, and Penalties.

## Article 4. Disclosure and Storage of Hazardous Substances (Reserved)

## Article 5. Regulation of Certified Technicians (Reserved)

### Article 1 GENERAL PROVISIONS

#### 33.071 Authority.

Pursuant to the authority cited in Chapter 1 of this Environmental Health Code (E.H. Code), California Health and Safety Code Section 25100 et seq. (Hazardous Waste Control), California Health and Safety Code Section 25280, Water Code Section 13171 (Underground Storage of Hazardous Substances), Water Code Sections 13304 and 13305 (Remedial Action by Government Agencies), Penal Code Sections 370 et seq. (Illegal Dumping), California Administrative Code, Title 22-Section 66016 (Hazardous Waste Control), Title 17-Section 488(d), Title 22-Section 70843 et seq., 71647 et seq., 72639 et seq., and 73641 et seq. (Disposal of Solid and Infectious Wastes), Title 24-Section 429, Title 17-Section 202 (Construction of Disposal Facilities at Hospitals), Code of Federal Regulations 40, Part 260 et seq. (Resource Conservation and Recovery Act), California Health and Safety Code Section 7054.4 (Disposal of Human Remains), Business and Professions Code Section 4143 (Disposal of Hypodermic Syringes and Needles), and other applicable State law, this jurisdiction hereby authorizes, that laws of the State and of this E.H. Code pertaining to the environmental management of hazardous materials and toxic substances be enforced within this jurisdiction by the Director and enforcement officers of the Department of Environmental Health Services (DEHS) of the County of San Bernardino.

#### 33.072 Administration, Violations, Remedies, and Penalties.

It shall be unlawful for any person or entity to violate any provision of this Chapter. This Chapter shall incorporate by reference all provisions of Chapters 1, 2, and 3 of this E.H. Code, except where in conflict with this Chapter, including all enforcement procedures, remedies, and penalties, which shall be in addition to all others provided by law.

#### 33.073-079 (Reserved)

### Article 2

## UNDERGROUND STORAGE OF HAZARDOUS MATERIALS

#### 33.0710 Existing Ordinance Continued.

This Article shall be construed as a restatement, continuation, and amendment to any existing ordinance of this jurisdiction pertaining to underground storage tanks (U.S.T.) that was adopted prior to January 1, 1984, and shall not be considered as a new enactment, for all purposes including California Health and Safety Code Section 25299.1

#### 33.0711 Authority.

Pursuant to the authority cited in Chapter 1, of this Environmental Health Code (E.H. Code) and Article 1 of this Chapter, within this jurisdiction, the Department of Environmental Health Services (DEHS) of the County of San Bernardino shall enforce the provisions of this Article.

#### 33.0712 Definitions.

Definitions herein shall supplement all definitions in state and federal law pertaining to the underground storage of hazardous materials, and shall include those of Chapters 1 and 3 of this E.H. Code.

- (a) "Board" means the State Water Resources Control Board.
- (b) "Facility" means one, or a combination of underground storage tanks (U.S.T.) used by a single business entity at a single location or site.
- (c) "Hazardous materials" means all of the following liquid and solid substances, unless DEHS in consultation with the Board, determines the substances could not adversely affect the quality of the waters of the State:

(1) Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.

(2) Hazardous substances, as defined in Health and Safety Code Section 25316.

(3) Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a Class II combustible liquid, or a Class III-A combustible liquid.

(d) "Pipe" means any pipeline or system of pipelines which is used in connection with the storage of hazardous materials and which are not intended to transport hazardous materials in interstate or intrastate commerce or to transfer hazardous materials in bulk or from a marine vessel.

(e) "Primary containment" means the first level of containment such as the portion of a U.S.T. which comes into immediate contact on its inner surface with the hazardous substance being contained.

(f) "Product-tight" means impervious to the substance which is contained, or is to be contained, so as to prevent the seepage of the substance from the primary containment. To be product-tight, the U.S.T. shall not be subject to physical or chemical deterioration by the substance which it contains over the useful life of the U.S.T.

(g) "Secondary containment" means the level of containment external to, and separate from, the primary containment.

(h) "Single-walled" means construction with walls made of only one thickness of material. For the purpose of this Article, laminated, coated, or clad materials shall be considered single-walled.

(i) "Special inspectors" means a professional engineer, registered pursuant to Chapter 7 (commencing with Section 6700) of Division 3 of the California Business and Professions Code, who is qualified to attest, at a minimum, to structural soundness, seismic safety, the compatibility of construction materials with contents, cathodic protections, and the mechanical compatibility of the structural elements.

(j) "Storage" or "store" means the containment, handling or treatment of hazardous substances, either on a temporary basis or for a period of years. "Storage" or "store" does not mean the storage of hazardous wastes in an U.S.T. if the person operating the U.S.T. has been issued a hazardous waste facilities permit by DEHS pursuant to California Health and Safety Code Section 25200 or granted interim status under California Health and Safety Code Section 25200.5.

(k) "Trade secrets" includes any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate products, compounds, or articles of trade, or to provide services having commercial value, and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it.

(l) "Unauthorized release" means any release or emission of any hazardous substance which does not conform to the provisions of this Article, unless this release is authorized by the Board pursuant to Division 7 (commencing with Section 13000) of the California Water Code.

(m) "Underground storage tank," ("U.S.T.") means any one or combination of tanks, including pipes connected thereto, which is used for the storage of hazardous substances and which is substantially or totally beneath the surface of the ground.

#### 33.0713 Permits and Fees Required.

(a) Within this jurisdiction, no person or entity shall construct, install, own, operate, test, monitor, certify, inspect, modify, repair, replace, or abandon an underground storage tank (U.S.T.) or store hazardous materials underground except with an unexpired, unsuspended, unrevoked permit to do so from DEHS, and having paid to DEHS those fees specified in the San Bernardino County Code Schedule of Fees, and except upon compliance with all provisions of this Article, and of Chapter 2 (Permits and Hearing Procedures) of this E.H. Code.





(b) Limited exemption for certain U.S.T. in unincorporated areas of San Bernardino County, U.S.T. which meet one or more of the following criteria are exempt from certain permitting and monitoring provisions of this Article.

(1) U.S.T. used for the storage of hazardous substances used for the control of external parasites of cattle and subject to the supervision of the county agricultural commissioner if the county agricultural commissioner determines, by inspection prior to use, that the U.S.T. provides a level of protection equivalent to that required by Health and Safety Code Section 25291, if the U.S.T. was installed after June 30, 1984, or protection equivalent to that provided by Health and Safety Code Section 25292, if the U.S.T. was installed on or before June 30, 1984.

(2) U.S.T. located on a farm and stores motor vehicle fuel which is used only to propel vehicles used primarily for agricultural purposes.

(3) U.S.T. which holds one thousand one hundred (1,100) gallons or less, is located at a residence of a person, and stores home heating fuel used exclusively for personal and nonincome-producing purposes.

(4) U.S.T. which is used for aviation or motor vehicle fuel, which U.S.T. is located within one (1) mile of a farm and used by a licensed pest control operator, as defined in Section 11705 of the State Food and Agricultural Code, who is primarily involved in agricultural pest control activities.

(c) All owners of U.S.T. defined in Section 33.0713(b) shall:

(1) Register such tanks with DEHS accompanied with the appropriate fee set forth in Section 16.0213B of the San Bernardino County Code Schedule of Fees and shall provide information as requested by DEHS including, age, type, use and location of the U.S.T. The registration shall be updated and renewed annually.

(2) Prior to removal or replacement, notify DEHS for inspection to determine whether leakage of material has occurred. In the event of any suspected leakage, the owner shall complete adequate sampling, cleanup and mitigation as approved by DEHS.

(3) Comply with provisions of Sections 33.0715(c), 33.0716, 33.0718(b), 33.0719, 33.0720, 33.0721, 33.0722.

(4) Comply with the construction requirements as contained in this E.H. Code when installing a U.S.T. as a new facility or replacement U.S.T.

(d) Plans for installation of all U.S.T. shall be submitted with the appropriate fee as set forth in Section 16.0213B of the San Bernardino County Code Schedule of Fees prior to installation. The U.S.T. may not be placed into use until final construction approval by DEHS.

### 33.0714 Permit Application and Conditions.

(a) Application for a permit pursuant to Section 33.0713 shall be made on the standardized form prepared by the Board and provided by DEHS. DEHS shall furnish the Board with a copy of the completed application.

The application shall include:

(1) A description of the construction of the underground storage tank (U.S.T.).

(2) A list of all the hazardous substances which are or will be stored in the U.S.T., specifying the hazardous substances for each U.S.T.

(3) A description of the monitoring program for the U.S.T.

(4) The name and address of the person, firm, corporation or legal entity which owns the U.S.T. and, if different, the name and address of the person who operates the U.S.T.

(5) The address of the facility at which the U.S.T. are located.

(6) The name of the person making the application.

(7) The name and twenty-four (24) hour telephone number of the contact person in the event of an emergency involving the facility.

(8) If the owner or operator of the U.S.T. is a public agency, the application shall include the name of the supervisor of the division, section, or office which operates the U.S.T.

(b) As a condition of any permit to operate U.S.T., the permittee shall complete an annual report form, prepared by the Board, which will detail any changes in the usage of any U.S.T., including the storage of new hazardous substances, changes in monitoring procedure, or unauthorized release occurrence, as set forth in Section 33.0718.

(c) If a permittee stores a hazardous substance in a U.S.T. which is not listed in the application, the permittee shall apply for a new or amended permit within thirty (30) days after commencing the storage of that hazardous substance.

### 33.0715 Inspections.

(a) DEHS shall inspect every underground storage tank (U.S.T.) within its jurisdiction at least once every three (3) years. The inspection shall determine:

(1) Whether the U.S.T. complies with the design and

construction standards of Sections 33.0717 and 33.0718

(2) Whether the operator has monitored and tested the U.S.T. as required by the permit, and

(3) Whether the U.S.T. is in a safe operating condition. After each inspection, DEHS shall prepare a compliance report, detailing the inspection and shall furnish a copy to the permit holder.

(b) In addition to, or in lieu of, the inspections specified in subdivision (a), DEHS may require the permit holder to employ special inspectors to periodically conduct an audit or assessment of the permit holder's facility to determine whether the facility complies with the factors specified in subdivision (a) and to prepare a special inspection report with recommendations concerning the safe storage of hazardous materials at the facility. The report shall contain recommendations consistent with the provisions of this Article where appropriate. A copy of the report shall be filed with DEHS at the same time the inspector submits the report to the permit holder. Within thirty (30) days after receiving this report, the permit holder shall file with DEHS a plan to implement all recommendations contained in the report or shall demonstrate, to the satisfaction of DEHS, why these recommendations should not be implemented.

(c) Entry Onto Property for Inspection. In order to carry out the purpose of this Article, any duly authorized representatives of DEHS or the Board has authority to investigate, detain, and issue citations as specified in California Health and Safety Code Section 25185, with respect to any place where U.S.T. are located, and in California Health and Safety Code Section 25185.5, with respect to real property which is within two thousand (2,000) feet of any place where underground storage tanks are located, and as set forth in Chapter 1 (Authority and Administration) of this E.H. Code.

### 33.0716 Confidential Matter.

(a) The Board or DEHS may disclose trade secrets received by the Board or DEHS pursuant to this Article to authorized representatives or other governmental agencies only in connection with the Board's or DEHS's responsibilities pursuant to this Article. The Board and DEHS shall establish procedures to ensure that these trade secrets are utilized only in connection with those responsibilities and are not otherwise disseminated without the consent of the person who provided the information to the Board or DEHS.

(b) Any person providing application information pursuant to Section 33.0714 shall, at the time of its submission, identify all information which the person believes are trade secrets. Any information or record not identified as a trade secret is available to the public, unless exempted from disclosure by other provisions of law.

(c) Where this jurisdiction by ordinance, provides an alternative to the listing of a substance which is a trade secret, the person storing that substance shall provide the identification of the material directly to the Board pursuant to this Section.

### 33.0717 Storage Tank Requirements.

Every underground storage tank (U.S.T.) installed after January 1, 1984, shall meet the following requirements:

(a) Be designed and constructed to provide primary and secondary levels of containment of the hazardous substances stored in them in accordance with the following performance standards:

(1) Primary containment shall be produce-tight

(2) Secondary containment shall be constructed to prevent structural weakening as a result of contact with any released hazardous substances, and also shall be capable of storing, for the maximum anticipated period of time necessary for the recovery of any released hazardous substance.

(3) In the case of an installation with one primary container, the secondary containment shall be large enough to contain at least one hundred percent (100%) of the volume of the primary U.S.T.

(4) In the case of multiple primary U.S.T., the secondary container shall be large enough to contain one hundred fifty percent (150%) of the volume of the largest primary U.S.T. placed in it, or ten percent (10%) of the aggregate internal volume of all primary U.S.T., whichever is greater.

(5) If the facility is open to rainfall, then the secondary containment must be able to additionally accommodate the volume of a twenty-four (24) hour rainfall as determined by a one hundred (100) year storm history.

(6) Single-walled containers do not fulfill the requirement of U.S.T. providing both a primary and a secondary containment.

(7) The design and construction of U.S.T. for motor vehicle fuels storage need not meet the requirements of paragraphs (1) to (6), inclusive, if:

(A) The primary containment construction is of glass fiber, reinforced plastic, cathodically protected steel, or steel clad with glass fibre reinforced plastic.

(B) Any such alternative primary containment is installed in conjunction with a system that will intercept and direct a leak from any part of the U.S.T. to a monitoring well to detect any release of motor vehicle fuels stored in the U.S.T. and which is designed to provide early leak detection, response, and to protect groundwater from releases, and





(C) If the monitoring is in accordance with the alternative method identified in Section 33.0718(a)(2). Pressurized piping systems connected to U.S.T. used for the storage of motor vehicle fuels and monitored in accordance with paragraph (3) of subdivision (b) of Section 33.0718 shall be deemed to meet the requirements of this subdivision.

(b) Be designed and constructed with a monitoring system capable of detecting the entry of the hazardous material stored in the primary containment into the secondary containment. If water could intrude into the secondary containment, a means of monitoring for water intrusion and for safely removing the water shall also be provided.

(c) When required by DEHS, a means of overflow protection for any primary U.S.T., including an overflow prevention device or an attention-getting higher level alarm, or both. Primary U.S.T. filling operations of U.S.T. containing motor vehicle fuels which are visually monitored and controlled by a facility operator satisfy the requirements of this paragraph.

(d) Different substances that in combination may cause a fire or explosion, or the production of flammable, toxic, or poisonous gas, or the deterioration of a primary or secondary container, shall be separated in both the primary and secondary containment so as to avoid potential intermixing.

(e) If water could enter into the secondary containment by precipitation or infiltration, the facility shall contain a means of removing the water by the owner or operator. This removal system shall also provide for a means of analyzing the removed water for hazardous substance contamination and a means of disposing of the water, if so contaminated, at an authorized disposal facility.

### 33.0718 Monitoring and Reporting.

(a) For every underground storage tank (U.S.T.) installed on or before January 1, 1984, and used for the storage of hazardous substances, the following actions shall be taken:

(1) On or before January 1, 1985, the owner shall outfit the facility with a monitoring system capable of detecting unauthorized releases of any hazardous substances stored in the facility, and thereafter, the operator shall monitor each facility, based on materials stored and the type of monitoring installed.

(2) Provide a means for visual inspection of the U.S.T. wherever practical, for the purpose of the monitoring required by subdivision (a)(1). Alternative methods of monitoring the U.S.T. on a monthly, or more frequent basis, may be required by DEHS, consistent with the regulations of the Board.

The alternative monitoring methods include, but are not limited to, the following methods:

(A) Pressure testing, vacuum testing or hydrostatic testing of the piping systems or U.S.T.

(B) A groundwater monitoring well or wells which are down gradient and adjacent to the U.S.T., vapor analysis within a well where appropriate, and analysis of soil borings at the time of initial installation of the well. DEHS and other public agencies specified by DEHS shall approve the location and number of wells, the depth of wells and the sampling frequency, pursuant to these regulations.

(C) For monitoring U.S.T. containing motor vehicle fuels daily gauging and inventory reconciliation by the operator, if inventory records are kept on file for one (1) year and are reviewed quarterly, the U.S.T. is tested for tightness hydrostatically or, when appropriate with pressure between three (3) and five (5) pounds, inclusive per square inch at time intervals specified by the Board and whenever any pressurized system has a leak detection device to monitor for leaks in the piping. The U.S.T. shall also be tested for tightness hydrostatically or where appropriate, with pressure between three (3) and five (5) pounds, inclusive, per square inch whenever there is a shortage greater than the amount which the Board shall specify by regulation.

(b) The operator of the U.S.T. shall monitor the facility using the method specified on the permit for the facility. Records shall be kept in sufficient detail to enable DEHS to determine that the operator has undertaken all monitoring activities required by the permit to operate.

(c) If the operator is not the owner, the owner shall provide a copy of the permit to the operator, enter into a written contract with the operator which requires the operator to monitor the U.S.T. as set forth in the permit, and provide the operator with a copy of Section 25287 of California Health and Safety Code, or by a summary of this section, in the form which the Board specified by regulation. The owner shall notify DEHS of any change of operator.

(d) Any unauthorized release from the primary containment which the operator is able to clean up within (8) hours, and which does not escape from the secondary containment, does not increase the hazard of fire or explosion and does not cause any deterioration of the secondary containment of the U.S.T., shall be recorded on the operator's monitoring reports.

(e) Any unauthorized release which escapes from the secondary containment, increases the hazard of fire or explosion, or causes any deterioration of the secondary containment of the U.S.T. shall be

reported by the operator to DEHS within twenty-four (24) hours after the release has been detected or should have been detected. A full written report shall be transmitted by the owner or operator of the U.S.T. within five (5) working days of the occurrence of the release.

(f) The reporting requirements imposed by this section are in addition to any requirements which may be imposed by Section 13271 of the California Water Code.

### 33.0719 Modifying and Terminating Permits.

DEHS shall review the permit whenever there has been an unauthorized release or when it determines that the underground storage tank (U.S.T.) is unsafe. DEHS may modify or terminate the permit. In determining whether to modify or terminate the permit, DEHS shall consider the age of the U.S.T., the methods of containment, the methods of monitoring, the feasibility of any required repairs, the concentration of the hazardous substances stored in the U.S.T., the severity of potential unauthorized releases, and the suitability of any other long-term measures preventive measures which would meet the requirements of this Article.

### 33.0720 Repair of Storage Tanks.

If there has been any unauthorized release, as defined in subdivision (e) of Section 33.0718, from an underground storage tank (U.S.T.) containing motor vehicle fuels not under pressure, the permit holder may repair the U.S.T. once by an interior-coating process if the U.S.T. meets all of the following requirements:

(a) An ultrasonic test, or comparable test, has been conducted to determine the thickness of the U.S.T. If the result of the test indicates that a serious problem exists with regard to the U.S.T., as determined by the person conducting the test, DEHS may require additional corrosion protection for the U.S.T. or may deny the authorization to repair.

(b) A hydrostatic test is an alternative to the ultrasonic test in subdivision (a). If the result of the test indicates that a serious problem exists with regard to the integrity of the U.S.T., as determined by the person conducting the test or DEHS may require additional protection for the U.S.T. or may deny authorization for the repair.

(c) A vacuum test has been conducted with a result indexed at not more than five point three (5.3) inches of mercury. This requirement shall not be applicable if technology is not available for testing the U.S.T. on site using accepted engineering practices.

(d) Following the repair, the standard installation testing for requirements for U.S.T. specified Section 2-7.3 of the Flammable and Combustible Liquids Code, adopted by the National Fire Protection Association on November 20, 1981, (NFPA 30-1981), and published in the 1982 Edition of the National Fire Code shall be followed.

(e) The material used to repair the U.S.T. by an interior-coating process is applied in accordance with nationally recognized engineering practices such as the American Petroleum Institute's recommended practice No. 1631 for the interior lining of existing U.S.T.

(g) The Board may develop regulations, in consultation with the State Fire Marshal, for the repair of U.S.T., and the standards in this section shall remain in effect until the adoption of these regulations.

### 33.0721 Storage Tanks Not in Use.

(a) No person shall abandon an underground storage tank (U.S.T.) or close or temporarily cease operating an U.S.T., except as provided in this section.

(b) An U.S.T. which is temporarily taken out of service, but which the operator intends to return to use, shall continue to be subject to all the permit, inspection, and monitoring requirements of this Article, unless the operator complies with the provisions of subdivision (c) for the period of time the U.S.T. is not in use.

(c) No person shall close an U.S.T. unless the person undertakes all of the following actions:

(1) Demonstrates to DEHS that all residual amounts of the hazardous substance or hazardous substances which were stored in the U.S.T. prior to its closure have been removed, properly disposed of, and neutralized.

(2) Adequately seals the U.S.T. to minimize any threat to the public safety and the possibility of water intrusion into, or runoff from the U.S.T.

(3) Provides for, and carries out, the maintenance of the U.S.T. as DEHS determines is necessary, for the period of time DEHS requires.

(4) Demonstrates to DEHS that there has been no significant soil contamination resulting from a discharge in the area surrounding the U.S.T. or facility.

### 33.0722 Violations, Remedies and Penalties.

It shall be unlawful for any person or entity to violate any provision of this Article. In addition to all enforcement procedures, remedies, and penalties provided by Chapters 1, 2, and 3 of this E. H. Code, the following shall apply:

(a) Any operator of an underground storage tank (U.S.T.)



shall be liable for a civil penalty of not less than five hundred dollars (\$500.00), or more than five thousand dollars (\$5,000.00) per day for any of the following:

- (1) Operates an U.S.T. which has not been issued a permit.
- (2) Fails to monitor the U.S.T., as required by the permit.
- (3) Fails to maintain records, as required by Section

33.0714.

(4) Fails to report an unauthorized release, as required by Section 33.0718.

(5) Fails to properly close an underground storage tank, as required by Section 33.0721.

(b) Any owner of an U.S.T. shall be liable for a civil penalty of not less than five hundred dollars (\$500.00) or more than five thousand dollars (\$5,000.00) per day for any of the following:

- (1) Failure to obtain a permit as specified by this Article.
- (2) Failure to repair an U.S.T. in accordance with the provisions of this Article.

(3) Abandonment or improper closure of any U.S.T. subject to the provisions of this Article.

(4) Knowing failure to take reasonable and necessary steps to assure compliance with this Article by the operator of an U.S.T.

(c) Any person who falsifies any monitoring records required by this Article, or knowingly fails to report an unauthorized release, shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000.00) or more than ten thousand dollars (\$10,000.00), or by imprisonment in the county jail for not to exceed one (1) year, or by both that fine and imprisonment.

(d) In determining both the civil and criminal penalties imposed pursuant to this section, the court shall consider all relevant circumstances, including, but not limited to, the extent of harm or potential harm caused by the violation, the nature of the violation and the period of time over which it occurred, the frequency of past violations, and the corrective action, if any, taken by the person who holds the permit.

(e) Penalties under this section are in addition to, and do not supersede or limit, any and all other legal remedies and penalties, civil or criminal, which may be applicable under other laws.

33.0723-0729 (Reserved)

### Article 3 HAZARDOUS WASTE GENERATORS

#### 33.0730 Authority.

Pursuant to the authority cited in Chapter 1 of this Environmental Health Code (E.H. Code) and Article 1 of this Chapter, within this jurisdiction, the Department of Environmental Health Services (DEHS) of the County of San Bernardino shall enforce the provisions of this Article.

#### 33.0731 Definitions.

Definitions herein shall supplement all definitions in state and federal law pertaining to the generation, treatment, storage, transport, and disposal of hazardous waste, and shall include those of Chapters 1 and 3 of this E.H. Code.

(a) "Contingency Plan" means a document setting out an organized, planned, and coordinated course of action in case of fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

(b) "Generator" means any person or entity, by site, whose act or process produces hazardous waste identified or listed in Title 22 of the California Administrative Code. Limited Quantity Generators shall be those generators producing less than five (5) gallons or less than fifty (50) pounds per month.

(c) "Hazardous Substance" means all of the following liquid and solid substances.

(1) Substances on the list prepared by the Director of the Department of Industrial Relations pursuant to Section 6382 of the Labor Code.

(2) Hazardous substances as defined in California Health and Safety Code Section 25316.

(3) Any substance or material which is classified by the National Fire Protection Association (NFPA) as a flammable liquid, a Class II combustible liquid, or a Class III-A combustible liquid.

(d) "Hazardous Waste" means any waste material or mixture of wastes which is toxic, corrosive, flammable, an irritant, a strong sensitizer, or which generates pressure through decomposition, heat or other means, if such waste or mixture of wastes may cause substantial injury, serious illness or harm to humans, domestic livestock or wildlife. It shall also include all wastes so defined by the California Health and Safety Code including "infectious waste."

(e) "Producer" means any person or entity who generates a hazardous waste material.

(f) "Transporter Facility" means an approved commercial location at which hazardous waste is stored for periods less than ninety-six (96) hours prior to delivery to any approved hazardous waste disposal facility.

#### 33.0732 Permits Required.

Within this jurisdiction, no person or entity shall generate or produce hazardous waste, or own or operate a transporter facility without holding an unexpired, unsuspended, unrevoked permit from DEHS to do so for each facility, location, and activity, and having paid those fees to DEHS specified by the San Bernardino County Code Schedule of Fees. Permits and fees shall also apply to infectious waste producers, and all construction, modification, remodel, and repair activities relating to any hazardous waste generation, production, storage, or transportation. Permits and fees, if any, shall also apply to limited quantity generators.

Applicants for DEHS permits shall provide all relevant information regarding their proposed operation including the following:

(a) The name, address, and telephone numbers of all generators and/or producers, and of all operators and/or owners of any transporter facility.

(b) The site address where hazardous waste is generated or produced.

(c) The name, address, and telephone numbers of the owner(s) of the land on which hazardous waste is generated or produced, if different from (a) above.

(d) The Assessor's Parcel Numbers for all such locations.

(e) The Federal Environmental Protection Agency (EPA) identification number for all locations.

(f) The Standard Industrial Code (SIC) number for all locations.

(g) All past and present dba's and fictitious business names operated under.

(h) Number and type of employees at each location.

(i) 24-hour emergency contact person.

(j) A listing of the type of wastes generated, the volume of wastes generated on a monthly basis, and the method by which each type of waste is disposed of at each location.

(k) Names of all haulers and/or recyclers.

(l) A production process flow chart, which, at a minimum, shall list all hazardous substances and how they are used in each production process, what products are produced, what hazardous and nonhazardous wastes are generated, and the type and quantity of all solvents and any other substances used in all "clean up" activities related to each production process.

(m) A declaration, under penalty of perjury, that the information provided is true and correct.

As a condition of any permit to generate or produce hazardous waste, the permittee shall prepare a Contingency Plan and shall notify DEHS of any changes in wastes produced and of changes in management or ownership.

#### 33.0733 Enforcement Activities.

Enforcement activities shall generally proceed as set forth in Chapters 1, 2, and 3, of this E.H. Code and relevant State law pertaining to the generation, production, management, transportation, treatment, storage, and disposal of hazardous waste.

#### 33.0734 Requirements — General.

Permittees shall manage all hazardous waste generated or produced in compliance with California Health and Safety Code Section 25100 et seq., Title 22 of the California Administrative Code, and Title 40 Code of Federal Regulations (CFR), Part 260 et seq.

#### 33.0735 Specific Requirements (Reserved).

#### 33.0736 Limited Quantity Generators (Reserved).

#### 33.0737 Recycler Permit Variance (RPV) (Reserved).

#### 33.0738 Infectious Waste Generators (IWG).

Infectious waste generators (IWG) shall in addition to all other requirements of this Article:

(a) Submit an operational flow chart to DEHS with each permit application or renewal which shall include:

(1) The amount and type of each waste generated

(2) The methods used for sterilization of infectious waste

(3) The methods used for disposal of infectious waste

(b) Submit a contingency plan to DEHS with each permit application or renewal which shall include

(1) Provision for the immediate pick-up of suspected untreated infectious wastes or improperly labelled noninfectious wastes which may improperly leave the IWG site and be disposed of at county landfills, transfer stations, or other locations.

(2) The names and phone numbers of those IWG contact





people implementing such contingency plan.

(c) Pay all costs incurred in the clean-up and proper disposal of all improperly disposed suspected infectious wastes or improperly labelled noninfectious wastes, where such clean-up and proper disposal is not substantially accomplished by the IWG within two (2) hours after DEHS has notified the IWG of the suspected improper disposal.

### 33.0739 Violations, Remedies, and Penalties.

It shall be unlawful for any person or entity to violate any provision of this Article. In addition to any other remedy or penalty provided by law, the remedies and penalties provided by Chapters 1, 2, and 3 of this E.H. Code shall apply to this Article.

#### Article 4

### DISCLOSURE AND STORAGE OF HAZARDOUS SUBSTANCES (RESERVED)

#### Article 5

### REGULATION OF CERTIFIED TECHNICIANS (RESERVED)



## APPENDIX 1C

### DEFINITIONS OF HAZARDOUS WASTE

#### I. INTRODUCTION

To plan a comprehensive hazardous waste management program the term "hazardous waste" must be defined. Various definitions of hazardous waste exist under different government codes and regulations. The gamut of hazardous waste compositions and potential human health and environmental effects, ranging from those of acute hazardous waste to special wastes, are contained in these definitions. This appendix summarizes and explains how Federal and State regulations define these hazardous waste. For the purpose of this Plan, the County is viewing hazardous waste as defined by both the Federal and State regulations.

#### II. FEDERAL DEFINITIONS

##### A. Hazardous Waste

The Resource Conservation and Recovery Act (RCRA) defines "hazardous waste" as:

"A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

1. Cause, or significantly contribute to an increase in serious irreversible, or incapacitating reversible, illness; or
2. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

The U.S. Environmental Protection Agency (EPA) acting under RCRA (40 CFR Part 261) defines a waste as hazardous waste if it meets any of the following criteria:

1. It exhibits any of the following characteristics of hazardous waste identified in Subpart C
  - a. ignitability - posing a fire hazard during routine management
  - b. corrosivity - ability to corrode standard containers, or to dissolve toxic components of other wastes
  - c. reactivity - tendency to explode under normal management conditions, to react violently when mixed with water, or to generate toxic gases

Source: Los Angeles County Solid Waste Management Plan Triennial Review

Volume II: Hazardous Waste





- d. EP toxicity (as determined by a specific Extraction Procedure) - presence of certain toxic materials at levels greater than those specified in the regulation
2. It is listed in Subpart D and has not been excluded from the list in Subpart D. Hazardous wastes included in this list, presented in Table 1C-1, are wastes that possess any of the above hazardous waste characteristics as well as wastes meeting the criteria for acute hazardousness and toxicity.
3. It is a mixture of solid waste and one or more hazardous wastes listed in Subpart D.

However, Parts 260 and 261 also contain sections, 261.4, 260.20 and 260.22, which exclude certain wastes from the definition of "hazardous waste", even though they are listed in Subpart D or exhibit some of the characteristics defined in Subpart C. The wastes include nuclear waste, household waste, mining and coal combustion waste, drilling muds, soil fertilizers, and sewer discharges.

Sections 260.20 and 260.22 provide provisions for petitioning to amend Part 261 to exclude a waste produced at a particular facility.

Figure 1C-1 depicts the interplay of these special provisions with the definition of hazardous waste.

#### B. Acute Hazardous Waste

The EPA defines acute hazardous wastes as those wastes found to be fatal to humans in low doses or, which in the absence of data on human toxicity, are shown to have:

1. An oral lethal dose fifty, (LD<sub>50</sub>) toxicity (rats) of <50 mg/kg;
2. An inhalation lethal concentration fifty (LC<sub>50</sub>) toxicity (rats) of < 2 mg/l; or
3. An dermal (LD<sub>50</sub>) toxicity (rabbits) of < 200 mg/kg;

or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness.

#### C. Toxic Waste

Waste found to contain any of the toxic constituents listed in Table 1C-2 is designated toxic waste. This table is derived from Appendix VIII of 40 CFR Part 261. Substances listed in the appendix have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms.



Table 1C-1 List of Hazardous Wastes  
40 CFR Part 261, Subpart D

§ 261.31 Hazardous waste from nonspecific sources.

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
Generic:		
F001	The spent halogenated solvents used in degreasing, tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and the chlorinated fluorocarbons; and sludges from the recovery of these solvents in degreasing operations.	(T)
F002	The spent halogenated solvents, tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, o-dichlorobenzene, trichlorofluoromethane and the still bottoms from the recovery of these solvents.	(T)
F003	The spent non-halogenated solvents, xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, n-butyl alcohol, cyclohexanone, and the still bottoms from the recovery of these solvents.	(B)
F004	The spent non-halogenated solvents, creosote and creosylic acid, nitrobenzene, and the still bottoms from the recovery of these solvents.	(B)
F005	The spent non-halogenated solvents, methanol, toluene, methyl ethyl ketone, methyl isobutyl ketone, carbon disulfide, isobutanol, pyridine and the still bottoms from the recovery of these solvents.	(B, T)
F006	Wastewater treatment sludges from electroplating operations.	(B, T)
F007	Spent plating bath solutions from electroplating operations.	(B, T)
F008	Plating bath sludges from the bottom of plating baths from electroplating operations.	(B, T)
F009	Spent stripping and cleaning bath solutions from electroplating operations.	(B, T)
F010	Quenching bath sludge from oil baths from metal heat treating operations.	(B, T)
F011	Spent solutions from salt bath pot cleaning from metal heat treating operations.	(B, T)
F012	Quenching wastewater treatment sludges from metal heat treating operations.	(B, T)
F013	Filtration tailings from selective flotation from mineral metals recovery operations.	(B, T)
F014	Crystallization wastewater treatment tailing pond sediment from mineral metals recovery operations.	(B, T)
F015	Spent cyanide bath solutions from mineral metals recovery operations.	(B, T)
F018	Dewestern air pollution control scrubber sludges from coke ovens and blast furnaces.	(B, T)

§ 261.32 Hazardous waste from specific sources.

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
Wood Preservation: K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
Inorganic Pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	(B, T)
K003	Wastewater treatment sludge from the production of molybdenum orange pigments.	(B, T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	(B, T)
K005	Wastewater treatment sludge from the production of chrome green pigments.	(B, T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).	(B, T)
K007	Wastewater treatment sludge from the production of iron blue pigments.	(B, T)
K008	Oven residue from the production of chrome oxide green pigments.	(B, T)
Organic Chemicals:		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	(B, T)
K010	Distillation acid cuts from the production of acetaldehyde from ethylene.	(B, T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(B, T)
K012	Still bottoms from the final purification of acrylonitrile in the production of acrylonitrile.	(B, T)
K013	Bottom stream from the acrylonitrile column in the production of acrylonitrile.	(B, T)
K014	Bottoms from the acrylonitrile purification column in the production of acrylonitrile.	(B, T)
K015	Still bottoms from the distillation of benzyl chloride.	(B, T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	(B, T)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	(B, T)
K018	Heavy ends from fractionation in ethyl chloride production.	(B, T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(B, T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(B, T)
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	(B, T)
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	(B, T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	(B, T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(B, T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	(B, T)
K026	Stripping still tails from the production of methyl ethyl pyridine.	(B, T)
K027	Centrifuge residue from toluene diisocyanate production.	(B, T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	(B, T)
K029	Waste from the product stream stripper in the production of 1,1,1-trichloroethane.	(B, T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(B, T)
Pesticides:		
K031	By-products salts generated in the production of MSMA and cacodylic acid.	(B, T)
K032	Wastewater treatment sludge from the production of chlordane.	(B, T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	(B, T)
K034	Filtration solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	(B, T)
K035	Wastewater treatment sludges generated in the production of creosote.	(B, T)
K036	Still bottoms from toluene nucleation distillation in the production of diafuron.	(B, T)
K037	Wastewater treatment sludges from the production of diafuron.	(B, T)
K038	Wastewater from the washing and stripping of phorale production.	(B, T)
K039	Filtration cake from the filtration of diethylphosphorodithioic acid in the production of phorale.	(B, T)
K040	Wastewater treatment sludge from the production of phorale.	(B, T)
K041	Wastewater treatment sludge from the production of phorale.	(B, T)
K042	Heavy ends or distillation residues from the distillation of trichlorobenzene in the production of 2,4,5-T.	(B, T)
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	(B, T)

Hazard Codes

Ignitable.....(I)

Reactive Wastes.....(R)

Toxic Wastes.....(T)

Source: Federal Register, Vol. 45 No. 98, Book 2, May 19, 1980.





Table 1C-1 List of Hazardous Wastes  
40 CFR Part 261, Subpart D  
(continued)

§ 261.32 Hazardous waste from specific sources.—Continued

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
<b>Explosives:</b>		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives	(R)
K045	Spent carbon from the treatment of wastewater containing explosives	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds	(M)
K047	Pink/red water from TNT operations	(R)
<b>Petroleum Refining:</b>		
K048	Dissolved air flotation (DAF) float from the petroleum refining industry	(M)
K049	Slip oil emulsion solids from the petroleum refining industry	(M)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	(M)
K051	API separator sludge from the petroleum refining industry	(M)
K052	Tank bottoms (leaded) from the petroleum refining industry	(M)
<b>Leather Tanning/Finishing:</b>		
K053	Chrome (blue) trimmings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair seve/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearing.	(M)
K054	Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair seve/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearing.	(M)
K055	Buffing dust generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair seve/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; and through-the-blue.	(M)
K056	Sewer screenings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair seve/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearing.	(M)
K057	Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair seve/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue and shearing.	(M)
K058	Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair seve/chrome tan/retan/wet finish; and through-the-blue.	(R, T)
K059	Wastewater treatment sludges generated by the following subcategory of the leather tanning and finishing industry: hair seve/non-chrome tan/retan/wet finish.	(R)
<b>Iron and Steel:</b>		
K060	Ammonia still lime sludge from coloring operations	(M)
K061	Emission control dust/sludge from the electric furnace production of steel	(M)
K062	Spent pickle liquor from steel finishing operations	(C, T)
K063	Sludge from lime treatment of spent pickle liquor from steel finishing operations	(M)
Primary Copper: K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production	(M)
Primary Lead: K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities	(M)
Primary Zinc:		
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production	(M)
K067	Electrolytic anode slime/sludges from primary zinc production	(M)
K068	Cadmium plant leach residue (iron oxide) from primary zinc production	(M)
Secondary Lead: K069	Emission control dust/sludge from secondary lead smelting	(M)

§ 261.33 Discarded Commercial Chemical Products, Off-Specification Species, Containers, and Spill Residues Thereof.

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded:

(a) Any commercial chemical product, or manufacturing chemical intermediate having the generic name listed in paragraphs (e) or (f) of this section.

(b) Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraphs (e) or (f) of this section.

(c) Any container or inner liner removed from a container that has been used to hold any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) of this section, unless:

(1) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(2) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(3) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

(d) Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraphs (e) or (f) of this Section.

[Comment: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in . . ." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraphs (e) or (f). Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in paragraphs (e) or (f), such waste will be listed in either § 261.31 or 261.32 or will be identified as a hazardous waste by the characteristics set forth in Subpart C of this Part.]

(e) The commercial chemical products or manufacturing chemical intermediates, referred to in paragraphs (a) through (d) of this section, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in § 261.5(c). These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazard Codes

Ignitable.....(I)

Reactive Wastes.....(R)

Toxic Wastes.....(T)

Source: Federal Register, Vol. 45 No. 98, Book 2, May 19, 1980



Table 1C-1 List of Hazardous Wastes  
40 CFR Part 261, Subpart D  
(continued)

Hazardous waste No.	Substance	Hazardous waste No.	Substance	Hazardous waste No.	Substance
P001	1080 see P058 1081 see P057 (Acetoxy)phenylmercury see P082 Acetone cyanohydrin see P068 3-(alpha-Acetoxybenzyl)-4-hydroxyazobenzene and salts	P040	0,2-Diethyl-0-(2-pyridinyloxy)phosphorothioate	P066	METAFOS see P071
P002	1-Acetyl-2-thiourea	P041	0,0-Diethyl phosphoric acid, 0-p-nitrophenyl ester	P067	METAPHOS see P071
P003	Acroten	P042	3,4-Dihydroxy-alpha-(methylamino)-methyl benzyl alcohol	P068	METASOL 30 see P082
P004	Agaricin see P007 Agaricin GN 5 see P082 Aldicarb see P068 Aldrin see P048	P043	Di-isopropylfluorophosphate DANETATE see P044 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro endo, ando see P060	P069	Methomyl
P010	Aldrin	P044	Dimethoate	P070	2-Methyl-2-thiourea
P011	Alginic acid	P045	3,3-Dimethyl-1-(methylthio)-3-butanone-O-((methylamino)carbonyl) oxime	P071	METHYL E 805 see P071
P012	Aluminum phosphide (R)	P046	alpha,alpha-Dimethylphenethylamine Dinitrocyclohexylphenol see P034	P072	Methyl hydrazine
P013	ALYTT see P037 Aminocarbonyl see P064 5-(Aminomethyl)-3-oxoazolid 4-Aminocyanine	P047	4,8-Dinitro-o-cresol and salts	P073	Methyl isocyanide see P064
P014	Ammonium molybdate see P118 Ammonium picrate (R) ANTHRAQUINONE ICDR see P082 ANTURAT see P073 AQUATHOL see P068 ARETTT see P020	P048	2,4-Dinitrophenol DINOSEB see P020 DINOSEBE see P020 Disulfoton see P038 2,4-Dithiobutyl DIBP see P020 DOLCO MOUSE CEREAL see P108 DOW GENERAL see P020 DOW GENERAL WEED KILLER see P020 DOW SELECTIVE WEED KILLER see P020 DOWICIDE G see P090 DYANACIDE see P082 EASTERN STATES DUOCIDE see P001 ELGETOL see P020	P074	Methyl isocyanide see P064
P015	Arsonic acid	P049	Endosulfan	P075	METHYL NIRON see P042
P016	Arsonic peroxide	P050	Endosulfan	P076	Methyl parathion
P017	Arsonic trioxide	P051	Endrin	P077	METRON see P071
P018	Atrazine see P001 AVITROL see P068 Azobenzene see P064 AZOFCOS see P081 Azophos see P061 BANTU see P072	P052	Ephedrine see P042	P078	MOLE DEATH see P108
P019	Bacillus thuringiensis BACMITE see P020 BACMITE see P018 Bacmethanol Bacmethanol see P050 Beryllium dust Beryllium fluoride BIFEN see P092 Butaphene see P020 2-sec-Butyl-4,8-dinitrophenol Calcium cyanide CALDON see P020 Carbon disulfide CERESAN see P092 CERESAN UNIVERSAL see P092 CHEMOX GENERAL see P020 CHEMOX P.E. see P020 CHEM-TOL see P090	P053	Ethionine	P079	MOUSE-NOTS see P108
P020	Chlorobenzonitrile	P054	Ethionine	P080	MOUSE-RD see P108
P021	Chlorobenzene	P055	FASCO FASCAT POWDER see P001 FEMDAA see P091	P081	MOUSE-TOX see P108
P022	Chlorobenzene	P056	Ferric cyanide	P082	MUSCIMOL see P007
P023	Chlorobenzene	P057	Fluorine	P083	1-Naphthyl-2-thiourea
P024	Chlorobenzene	P058	2-Fluorocetamide Fluoroacetic acid, sodium salt FOLLOOL-40 see P071 FOLLOOL M see P071 FOSFERN M 50 see P071 FRATOL see P058 Fulminic acid of mercury see P06 FUNGITOX OR see P092 RUSOF see P057 GALLOTOX see P082 GEARPHOS see P071 GERUTOX see P020	P084	Nickel carbonyl
P025	1-(p-Chlorobenzoyl)-5-methoxy-2-methylindole-3-acetic acid	P059	Heptachlor	P085	Nickel cyanide
P026	1-(p-Chlorophenyl)thiourea	P060	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8,8a-hexahydro endo, ando-dimethanonaphthalene 1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P086	Nicotene and salts
P027	3-Chloroaniline	P061	Hexachloropropene	P087	Nitric oxide
P028	alpha-Chloroaniline	P062	Hexachlorophosphate	P088	p-Nitroaniline
P029	Copper cyanide	P063	HOSTAQUICK see P082 HOSTAQUICK see P082 Hydrocarbons see P066 Hydrocyanic acid ILLOXOL see P037 INDOC see P025 Indomethacin see P025 INSECTOPHENE see P050 Isodrin see P060	P089	Nitrogen dioxide
P030	Cyanoacrylate	P064	Isocyanic acid, methyl ester	P089	Nitrogen peroxide
P031	Cyanogen	P065	KLOSEB see P020 KOP-THODAN see P050 KWIK-KOL see P108 KWIK-KOL see P082 KUMADER see P001 KYPRARIN see P001 LEYTOSAN see P082 LIQUIPHENE see P082 MALIK see P050 MAREVAN see P001 MAR-FRIN see P001 MARTIND MAR-FRIN see P001 MAVERAN see P001 MEGATOX see P005	P090	Nitrogen trioxide
P032	Cyanogen bromide	P066	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8,8a-hexahydro endo, ando-dimethanonaphthalene	P091	Nitrobenzene (R)
P033	Cyanogen chloride	P067	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P092	N-Nitrosodimethylamine
P034	Cyanogen	P068	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P093	N-Nitrosodiphenylamine
P035	2-Cyanoethyl-4,8-dinitrophenol	P069	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P094	N-Nitrosomethylvinylamine
P036	D-COON see P001 DETHIACOR see P001 DETHIHEL see P001 DFP see P043	P070	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P095	NYLUMERATE see P092
P037	2,4-Dichlorophenylacetic acid (2,4-D)	P071	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P096	OCTALOX see P037
P038	Dichlorophenylamine	P072	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P097	Octamethylpyrophosphoramide
P039	Dicyanogen see P031	P073	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P098	OCTAN see P082
P040	Disin	P074	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P099	Oleyl alcohol condensed with 2 moles ethylene oxide
P041	DELDREX see P037	P075	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P100	OWPA see P085
P042	Disulfoton	P076	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P101	OWPA see P085
P043	Disulfoton	P077	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P102	OWPA see P085
P044	Disulfoton	P078	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P103	OWPA see P085
P045	Disulfoton	P079	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P104	OWPA see P085
P046	Disulfoton	P080	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P105	OWPA see P085
P047	Disulfoton	P081	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P106	OWPA see P085
P048	Disulfoton	P082	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P107	OWPA see P085
P049	Disulfoton	P083	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P108	OWPA see P085
P050	Disulfoton	P084	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P109	OWPA see P085
P051	Disulfoton	P085	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P110	OWPA see P085
P052	Disulfoton	P086	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P111	OWPA see P085
P053	Disulfoton	P087	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P112	OWPA see P085
P054	Disulfoton	P088	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P113	OWPA see P085
P055	Disulfoton	P089	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P114	OWPA see P085
P056	Disulfoton	P090	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P115	OWPA see P085
P057	Disulfoton	P091	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P116	OWPA see P085
P058	Disulfoton	P092	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P117	OWPA see P085
P059	Disulfoton	P093	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P118	OWPA see P085
P060	Disulfoton	P094	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P119	OWPA see P085
P061	Disulfoton	P095	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P120	OWPA see P085
P062	Disulfoton	P096	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P121	OWPA see P085
P063	Disulfoton	P097	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P122	OWPA see P085
P064	Disulfoton	P098	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P123	OWPA see P085
P065	Disulfoton	P099	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P124	OWPA see P085
P066	Disulfoton	P100	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P125	OWPA see P085
P067	Disulfoton	P101	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P126	OWPA see P085
P068	Disulfoton	P102	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P127	OWPA see P085
P069	Disulfoton	P103	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P128	OWPA see P085
P070	Disulfoton	P104	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P129	OWPA see P085
P071	Disulfoton	P105	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P130	OWPA see P085
P072	Disulfoton	P106	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P131	OWPA see P085
P073	Disulfoton	P107	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P132	OWPA see P085
P074	Disulfoton	P108	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P133	OWPA see P085
P075	Disulfoton	P109	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P134	OWPA see P085
P076	Disulfoton	P110	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P135	OWPA see P085
P077	Disulfoton	P111	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P136	OWPA see P085
P078	Disulfoton	P112	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P137	OWPA see P085
P079	Disulfoton	P113	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P138	OWPA see P085
P080	Disulfoton	P114	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P139	OWPA see P085
P081	Disulfoton	P115	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P140	OWPA see P085
P082	Disulfoton	P116	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P141	OWPA see P085
P083	Disulfoton	P117	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P142	OWPA see P085
P084	Disulfoton	P118	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P143	OWPA see P085
P085	Disulfoton	P119	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P144	OWPA see P085
P086	Disulfoton	P120	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P145	OWPA see P085
P087	Disulfoton	P121	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P146	OWPA see P085
P088	Disulfoton	P122	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P147	OWPA see P085
P089	Disulfoton	P123	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P148	OWPA see P085
P090	Disulfoton	P124	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P149	OWPA see P085
P091	Disulfoton	P125	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P150	OWPA see P085
P092	Disulfoton	P126	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P151	OWPA see P085
P093	Disulfoton	P127	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P152	OWPA see P085
P094	Disulfoton	P128	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P153	OWPA see P085
P095	Disulfoton	P129	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P154	OWPA see P085
P096	Disulfoton	P130	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P155	OWPA see P085
P097	Disulfoton	P131	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P156	OWPA see P085
P098	Disulfoton	P132	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P157	OWPA see P085
P099	Disulfoton	P133	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P158	OWPA see P085
P100	Disulfoton	P134	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P159	OWPA see P085
P101	Disulfoton	P135	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P160	OWPA see P085
P102	Disulfoton	P136	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P161	OWPA see P085
P103	Disulfoton	P137	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P162	OWPA see P085
P104	Disulfoton	P138	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P163	OWPA see P085
P105	Disulfoton	P139	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P164	OWPA see P085
P106	Disulfoton	P140	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P165	OWPA see P085
P107	Disulfoton	P141	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P166	OWPA see P085
P108	Disulfoton	P142	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P167	OWPA see P085
P109	Disulfoton	P143	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P168	OWPA see P085
P110	Disulfoton	P144	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P169	OWPA see P085
P111	Disulfoton	P145	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P170	OWPA see P085
P112	Disulfoton	P146	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P171	OWPA see P085
P113	Disulfoton	P147	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P172	OWPA see P085
P114	Disulfoton	P148	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P173	OWPA see P085
P115	Disulfoton	P149	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P174	OWPA see P085
P116	Disulfoton	P150	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P175	OWPA see P085
P117	Disulfoton	P151	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P176	OWPA see P085
P118	Disulfoton	P152	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P177	OWPA see P085
P119	Disulfoton	P153	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P178	OWPA see P085
P120	Disulfoton	P154	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P179	OWPA see P085
P121	Disulfoton	P155	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P180	OWPA see P085
P122	Disulfoton	P156	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P181	OWPA see P085
P123	Disulfoton	P157	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P182	OWPA see P085
P124	Disulfoton	P158	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P183	OWPA see P085
P125	Disulfoton	P159	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P184	OWPA see P085
P126	Disulfoton	P160	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P185	OWPA see P085
P127	Disulfoton	P161	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P186	OWPA see P085
P128	Disulfoton	P162	1,4,5,6,7,7-Hexachloro-cyclo-5-norbornene-2,3-dimethanol sulfite see P050	P187	OWPA see P085
P129	Disulfoton	P163	1		





Table 1C-1 List of Hazardous Wastes  
40 CFR Part 261, Subpart D  
(continued)

Hazardous waste No.	Substance <sup>1</sup>	Hazardous waste No.	Substance <sup>1</sup>	Hazardous waste No.	Substance <sup>1</sup>
P102	2-Propyn-1-ol PROTHROMADIN see P001 QUICKSAM see P082 QUINTOX see P007 RAT AND MICE BAIT see P00 RAT-A-WAY see P001 RAT-B-GON see P001 RAT-O-GIDE #2 see P001 RAT-GUARD see P001 RAT-KILL see P001 RAT-MIX see P001 RATS-NO-MORE see P001 RAT-OLA see P001 RATOREX see P001 RATTUNAL see P001 RAT-TROL see P001 RO-DETH see P001 RO-DEX see P108 ROSEX see P001 ROUGH & READY MOUSE MIX see P001 SANASEED see P108 SANTOBRITE see P090 SANTOPHEN see P090 SANTOPHEN 20 see P090 SCH-RADAN see P085	P103 Selenium P104 Silver Cyanide SMITE see P105 SPARC see P020 SPOR-KIL see P092 SPRAY-TROL BRAND RODENT-TROL see P001 SPURGE see P020 P105 Sodium azide Sodium coumatin see P001 P106 Sodium cyanide Sodium fluorocitrate see P056 SODIUM WARFARIN see P001 SOLFARIN see P001 SOLFOBLACK 88 see P048 SOLFOBLACK 88 see P048 P107 Strontium sulfide P108 Strychnine and salts SUBTEX see P020 SYSTEM see P085 TAG FUNGICIDE see P082 TEKWAISA see P071 TEMIX see P070 TEMIX see P070 TERMA-TROL see P080 P109 Tetraethylthiopyrophosphate P110 Tetraethyl lead P111 Tetraethylpyrophosphate P112 Tetraethylenethane Tetrahydrophosphoric acid, hexaethyl ester see P062 TETROSULFUR BLACK PB see P048 TETROSULFUR PBR see P048 P113 Thalic acid Thallium peroxide see P113 P114 Thallium selenate P115 Thallium (I) sulfide THUFOR see P092 THUMUL see P092 THIODAN see P050 THIOFOR see P050 THIOMUL see P050 THOONEX see P050 THIOPHENT see P071 P116 Thiocarbamide Thioethan Banel see P050 P117 Thiram THOMPSON'S WOOD FX see P090 TIOVEL see P050 P118 Trichloromethaneethanol TWIN LIGHT RAT AWAY see P001 USAF R4-8 see P089 USAF EK-4890 see P002 P119 Vanadic acid, ammonium salt P120 Vanadium pentoxide VOFATOX see P071 WAKADU see P120 WARCOLUMIN see P001 WARFARIN SODIUM see P001 WARFICIDE see P001 WOFOTOX see P072 YANOOK see P057 YASORNOCK see P058	ZIARNIK see P062 P121 Zinc cyanide P122 Zinc phosphide (P,T) ZOOCCOLMARIN see P001 <sup>1</sup> The Agency included those trade names of which it was aware; an omission of a trade name does not imply that the omitted material is not hazardous. The material is hazardous if it is listed under its generic name.  (f) The commercial chemical products or manufacturing chemical intermediates, referred to in paragraphs (a), (b) and (d) of this section, are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in § 261.5 (a) and (b). These wastes and their corresponding EPA Hazardous Waste Numbers are:  Hazardous Waste No. Substance U001 AAF see U005 U002 Acetaldehyde U003 Acetone (I) U004 Acetonitrile (I,T) U005 Acetophenone U006 2-Acetylaminofluorene U008 Acetyl chloride (I,T) U007 Acrylonitrile Acrylonitrile tetrachloride see U208 Acrylonitrile isochloride see U228 U008 Acrylic acid (I) U009 Acrylonitrile AEROTHE TT see U228 3-Amino-5-(p-acetamidophenyl)-1H-1,2,4-triazole, hydrazine see U011 U010 5-Amino-1,1,1,2,2,2,6,6,6-octafluoro-5-(hydroxymethyl)-6-methoxy-6-methylcarbamate (santonZ 3,2,4) pyrrole(1,2-a) indole-4, 7-dione (ester) U011 Antracene U012 Aniline (I) U013 Aroclors U014 Auranine U015 Azaserine U016 Benz(c)acridine U017 Benzal chloride U018 Benz(c)anthracene U019 Benzene U020 Benzenesulfonyl chloride (I,T) U021 Benzidine 1,2-Benzisothiazol-3-one, 1,1-dioxide see U202 Benzotriazole Benzotriazole pyrene U022 Benzotrichloride (I,T) U023 Bis(2-chloroethoxy)methane U024 Bis(2-chloroethyl) ether U025 N,N-Bis(2-chloroethyl)-2-naphthylamine U026 Bis(2-chloroisopropyl) ether U027 Bis(2-ethylhexyl) phthalate U028 Bromomethane U030 4-Bromophenyl phenyl ether U031 n-Butyl alcohol (I) U032 Calcium chromate Carbolic acid see U188 Carbon tetrachloride see U211 U033 Carbonyl fluoride U034 Chloral U035 Chlorambucil U036 Chlorazene U037 Chlorobenzene U038 Chlorobenzilate U039 p-Chloro-m-cresol U040 Chlorodibromomethane U041 1-Chloro-2,3-epoxypropane CHLOROETHENE NU see U228 U042 Chloromethyl vinyl ether U043 Chloroethane U044 Chloroform (I,T)	U045 Chloromethane (I,T) U046 Chloromethyl methyl ether U047 2-Chloronaphthalene U048 2-Chlorophenol U049 4-Chloro-o-toluidine hydrochloride U050 Chrysene C.I. 23080 see U079 U051 Cresols U052 Cresols U053 Crotonaldehyde U054 Crotylic acid U055 Cumene Cyanomethane see U003 U056 Cyclohexane (I) U057 Cyclohexanone (I) U058 Cyclophosphamide U059 Deaminophen U060 DDO U061 DOT U062 Diethylsulfide U063 Dibenz(a,h)anthracene Dibenz(a,h)anthracene see U063 U064 Dibenz(a,h)pyrene U065 Dibromochloromethane U066 1,2-Dibromo-3-chloropropane U067 1,2-Dibromomethane U068 Dibromomethane U069 Di-n-butyl phthalate U070 1,2-Dichlorobenzene U071 1,3-Dichlorobenzene U072 1,4-Dichlorobenzene U073 3,3'-Dichlorobenzidine U074 1,4-Dichloro-2-butene 3,3'-Dichloro-4,4'-dianthracenyl see U073 U075 Dichlorodifluoromethane U076 1,1-Dichloroethane U077 1,2-Dichloroethane U078 1,1-Dichloroethylene U079 1,2-Dichloro-4,4'-dianthracenyl U080 Dichloromethane Dichloromethylbenzene see U017 U081 2,4-Dichlorophenol U082 2,6-Dichlorophenol U083 1,2-Dichloropropane U084 1,3-Dichloropropane U085 Dipropylamine (I,T) U086 1,2-Diethylhydrazine U087 0,0-Diethyl-S-methyl ester of phosphorodithioic acid U088 Diethyl phthalate U089 Diethylstilbestrol U090 Dihydrostilbene U091 3,3'-Dimethoxybenzidine U092 Dimethylamine (I) U093 p-Dimethylaminobenzene U094 7,12-Dimethylbenz(a)anthracene U095 3,3'-Dimethylbenzidine U096 alpha, alpha-Dimethylbenzylhydrazide (I) U097 Dimethylcarbamoyl chloride U098 1,1-Dimethylhydrazine U099 1,2-Dimethylhydrazine U100 Dimethylhydrazine U101 2,4-Dimethylphenol U102 Dimethyl phthalate U103 Diethyl sulfide U104 2,4-Dinitrophenol U105 2,4-Dinitroanisole U106 2,6-Dinitroanisole U107 Di-n-octyl phthalate U108 1,4-Dioxane U109 1,2-Diphenylhydrazine U110 Dipropylamine (I) U111 Di-n-propyltoluene EBDC see U114 1,4-Epoxybutane see U213 U112 Ethyl acetate (I) U113 Ethyl acrylate (I) U114 Ethylenedithiocarbamate U115 Ethylene oxide (I,T) U116 Ethylene thioanisole U117 Ethyl ether (I,T) U118 Ethylmethacrylate U119 Ethyl methanesulfonate Ethynitrile see U003 Freemaster T2P see U235	



Table 1C-1 List of Hazardous Wastes  
40 CFR Part 261, Subpart D  
(continued)

Hazardous Waste No.	Substance <sup>1</sup>	Hazardous Waste No.	Substance <sup>1</sup>
U120	Fluorenone	U182	Pronamide
U121	Fluorotrichloromethane	U183	1,3-Propene sulfone
U122	Formaldehyde	U184	n-Propylamine (2)
U123	Formic acid (C,T)	U185	Pyridine
U124	Furan (T)	U187	Quinones
U125	Furfural (T)	U200	Reserpine
U126	Glycidylaldehyde	U201	Resorcinol
U127	Heptachlorobenzene	U202	Saccharin
U128	Heptachlorobutadiene	U203	Salsol
U129	Heptachlorocyclopentadiene	U204	Selenous acid
U130	Heptachlorocyclopentadiene	U205	Selenium sulfide (R,T)
U131	Heptachlorothane		Silver see U233
U132	Heptachlorophene	U206	Sinigrasin
U133	Hydrazine (R,T)		2,4,5-T see U232
U134	Hydrofluoric acid (C,T)	U207	1,2,4,5-Tetrachlorobenzene
U135	Hydrogen sulfide	U208	1,1,1,2-Tetrachloroethane
	Hydroxybenzene see U188	U209	1,1,2,2-Tetrachloroethane
U136	Hydroxydimethyl amine oxide	U210	Tetrachloroethane
	4,4'-dimethoxydiphenyl ether see U014		Tetrachloroethylene see U230
U137	Indanol 2,3-epoxide	U211	Tetrachloromethane
U138	Iodomethane	U212	2,3,4,6-Tetrachlorophenol
U139	Iron Dextran	U213	Tetrahydrofuran (2)
U140	Isobutyl alcohol	U214	Thallium (I) acetate
U141	Isosulfate	U215	Thallium (I) carbonate
U142	Kaoline	U216	Thallium (I) chloride
U143	Laccapine	U217	Thallium (I) nitrate
U144	Lead acetate	U218	Thioacetamide
U145	Lead phosphate	U219	Thiourea
U146	Lead subacetate	U220	Toluene
U147	Maleic anhydride	U221	Toluenediamine
U148	Maleic hydrazide	U222	o-Toluidine hydrochloride
U149	Malononitrile	U223	Toluene diisocyanate
	MEK Peroxide see U168	U224	Tosaphene
U150	Melphalan		2,4,5-TP see U233
U151	Mercury	U225	Tribromomethane
U152	Methacrylonitrile	U226	1,1,1-Trichloroethane
U153	Methanethiol	U227	1,1,2-Trichloroethane
U154	Methanol	U228	Trichloroethane
U155	Methacrylonitrile		Trichloroethylene see U228
	Methyl alcohol see U154	U229	Trichlorofluoromethane
U156	Methyl chloroacetate	U230	2,4,5-Trichlorophenol
	Methyl chloroform see U226	U231	2,4,6-Trichlorophenol
U157	3-Methylcholanthrene	U232	2,4,5-Trichlorophenoxyacetic acid
	Methyl chloroformate see U156	U233	2,4,5-Trichlorophenoxypropionic acid alpha, alpha, alpha-Trichloroethane see U023
U158	4,4'-Methylene-bis-(2-chloroaniline)		TRI-CLENE see U226
U159	Methyl ethyl ketone (MEK) (R,T)	U234	Trinitrobenzene (R,T)
U160	Methyl ethyl ketone peroxide (R)	U235	Tri-(2,3-dibromopropyl) phosphate
	Methyl iodide see U128	U236	Trypan blue
U161	Methyl isobutyl ketone	U237	Ureol mustard
U162	Methyl methacrylate (R,T)	U238	Urethane
U163	N-Methyl-N'-nitro-N-nitrosoguanidine		Vinyl chloride see U043
U164	Methyleneauric		Vinylidene chloride see U078
	Miconazol C see U010	U239	Xylene
U165	Naphthalene		
U166	1-A-Naphthoquinone		
U167	1-Naphthylamine		
U168	2-Naphthylamine		
U169	Nitrobenzene (R,T)		
	Nitrobenzol see U168		
U170	4-Nitrophenol		
U171	2-Nitropropane (T)		
U172	N-Nitrosod-n-butylamine		
U173	N-Nitrosodiphenylamine		
U174	N-Nitrosodiphenylamine		
U175	N-Nitrosod-n-propylamine		
U176	N-Nitrosod-methylurea		
U177	N-Nitrosod-methylurea		
U178	N-Nitrosod-methylurethane		
U179	N-Nitrosopiperidine		
U180	N-Nitrosopyrrolidine		
U181	5-Nitro-o-toluidine		
U182	Paraldehyde		
	PONB see U185		
U183	Pentachlorobenzene		
U184	Pentachloroethane		
U185	Pentachloronitrobenzene		
U186	1,5-Pentadiene (2)		
	Perc see U210		
	Pentachloroethylene see U210		
U187	Phenacetyl		
U188	Phenol		
U189	Phosphorus sesulfide (R)		
U190	Phthalic anhydride		
U191	2-Picoline		

<sup>1</sup> The Agency included those trade names of which it was aware; an omission of a trade name does not imply that it is not hazardous. The material is hazardous if it is listed under its generic name.



FIGURE 1C-1  
DEFINITION OF A HAZARDOUS WASTE

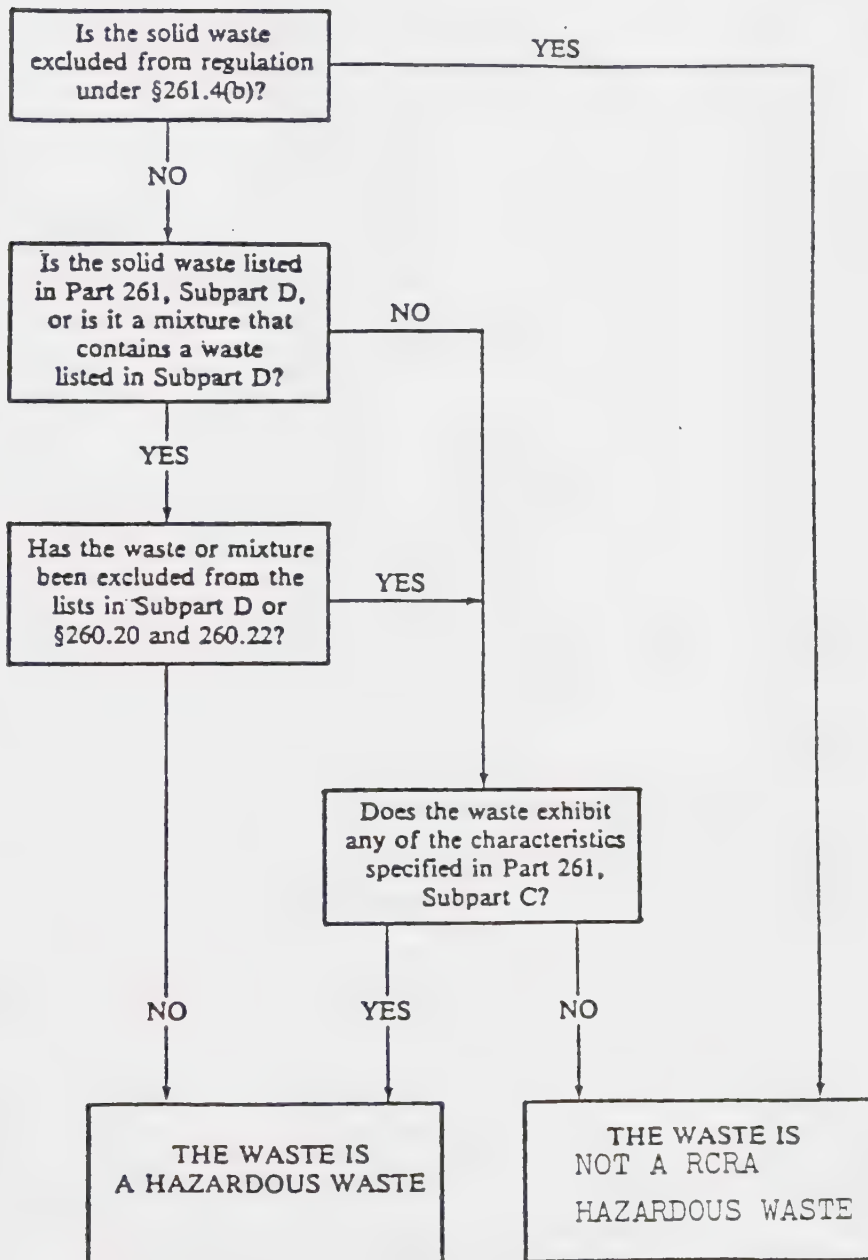






TABLE 1C-2  
HAZARDOUS CONSTITUENTS  
Appendix VIII, 40 CFR 261

Acetaldehyde	Chlorinated benzenes, N.O.S.	1,2-Dichloropropane
(Acetato)phenylmercury	Chlorinated ethane, N.O.S.	Dichloropropanol, N.O.S.
Acetonitrile	Chlorinated naphthalene, N.O.S.	Dichloropropene, N.O.S.
3-(alpha-Acetylbenzyl)-4-hydroxycoumarin and salts	Chlorinated phenol, N.O.S.	1,3-Dichloropropene
2-Acetylaminofluorene	Chloroacetaldehyde	Dieldrin
Acetyl chloride	Chloroalkyl ethers	Diepoxybutane
1-Acetyl-2-thiourea	p-Chloroaniline	Diethylarsine
Acrolein	Chlorobenzene	0,6-Diethyl-S-(2-ethylthio)ethyl ester of phosphorothioic acid
Acrylamide	Chlorobenzilate	1,2-Diethylhydrazine
Acrylonitrile	1-(p-Chlorobenzoyl)-5-methoxy-2- methylindole-3-acetic acid	0,0-Diethyl-S-methylester phosphorodithioic acid
Aflatoxins	p-Chloro-m-cresol	0,0-Diethylphosphoric acid, 0-p-mitrophenyl ester
Aldrin	1-Chloro-2,3-epoxybutane	Diethyl phthalate
Allyl alcohol	2-Chloroethyl vinyl ether	0,0-Diethyl-0-(2-pyrazinyl)phosphorothioate
Aluminum phosphide	Chloroform	Diethylstilbestrol
4-Aminobiphenyl	Chloromethane	Dihydrosafrole
6-Amino-1,1a,2,8a,8b-hexahydro-8- (hydroxymethyl)-8a-methoxy-5- methylcarbamate azirino(2',3':3,4) pyrrolo(1,2-a)indole-4,7-dione (ester) (Mitomycin C)	Chloromethyl methyl ether	3,4-Dihydroxy-alpha-(methylamino)-methyl benzyl alcohol
5-(Aminomethyl)-3-isoxazolol	2-Chloronaphthalene	Di-isopropylfluorophosphate (DFP)
4-Aminopyridine	2-Chlorophenol	Dimethoate
Amitrole	1-(o-Chlorophenyl)thiourea	3,3'-Dimethoxybenzidine
Antimony and compounds, N.O.S. <sup>1</sup>	3-Chloropropionitrile	p-Dimethylaminoazobenzene
Aramite	alpha-Chlorotoluene	7,12-Dimethylbenz[a]anthracene
Arsenic and compounds, N.O.S.	Chlorotoluene, N.O.S.	3,3'-Dimethylbenzidine
Arsenic acid	Chromium and compounds, N.O.S.	Dimethylcarbamoyl chloride
Arsenic pentoxide	Chrysene	1,1-Dimethylhydrazine
Arsenic trioxide	Citrus red No. 2	1,2-Dimethylhydrazine
Auramine	Copper cyanide	3,3-Dimethyl-1-(methylthio)-2-butanone-0- (methylamino) carbonyloxime
Azaserine	Creosote	Dimethylnitrosoamine
Barium and compounds, N.O.S.	Crotonaldehyde	alpha, alpha-Dimethylphenethylamine
Barium cyanide	Cyanides (soluble salts and complexes), N.O.S.	2,4-Dimethylphenol
Benz[c]acridine	Cyanogen	Dimethyl phthalate
Benz[a]anthracene	Cyanogen bromide	Dimethyl sulfate
Benzene	Cyanogen chloride	Dinitrobenzene, N.O.S.
Benzenearsonic acid	Cycasin	4,6-Dinitro-o-cresol and salts
Benzenethiol	2-Cyclohexyl-4,6-dinitrophenol	2,4-Dinitrophenol
Benzidine	Cyclophosphamide	2,4-Dinitrotoluene
Benzo[a]anthracene	Dauromycin	2,6-Dinitrotoluene Di-n-octyl phthalate
Benzo[b]fluoranthene	DDD	1,4-Dioxane
Benzo[j]fluoranthene	DDE	1,2-Diphenylhydrazine
Benzo[a]pyrene	DDT	Di-n-propylnitrosamine
Benzotrithloride	Diallate	Disulfoton
Benzyl chloride	Dibenz[a,h]acridine	2,4-Dithiobiuret
Beryllium and compounds, N.O.S.	Dibenz[a,i]acridine	Endosulfan
Bis(2-chloroethoxy)methane	Dibenz[a,b]anthracene(Dtbenzo[a,h] anthracene)	Endrin and metabolites
Bis(2-chloroethyl) ether	7H-Dibenzo[c,g]carbazole	Epichlorohydrin
N,N-Bis(2-chloroethyl)-2-naphthylamine	Dibenzo[a,e]pyrene	Ethyl cyanide
Bis(2-chloroisopropyl) ether	Dibenzo[a,h]pyrene	Ethylene diamine
Bis(chloromethyl) ether	1,2-Dibromo-3-chloropropane	Ethylenebisdithiocarbamate (EBDC)
Bis(2-ethylhexyl) phthalate	1,2-Dibromoethane	Ethyleneimine
Bromoacetone	Dibromomethane	Ethylene oxide
Bromomethane	Di-n-butyl phthalate	Ethylenethiourea
4-Bromophenyl phenyl ether	Dichlorobenzene, N.O.S.	Ethyl methanesulfonate
Brutine	3,3'-Dichlorobenzidine	Fluoranthene
2-Butanone peroxide	1,1-Dichloroethane	Fluorine
Butyl benzyl phthalate	1,2-Dichloroethane	2-Fluoroacetamide
2-sec-Butyl-4,6-dinitrophenol (DNBP)	trans-1,2-Dichloroethane	Fluoroacetic acid, sodium salt
Cadmium and compounds, N.O.S.	Dichloroethylene, N.O.S.	Formaldehyde
Calcium chromate	1,1-Dichloroethylene	Glycidylaldehyde
Calcium cyanide	Dichloromethane	Halomethane, N.O.S.
Carbon disulfide	2,4-Dichlorophenol	Heptachlor
Chlorambucil	2,6-Dichlorophenol	Heptachlor epoxide (alpha, beta, and gamma isomers)
Chlordane (alpha and gamma isomers)	2,4-Dichlorophenoxyacetic acid (2,4-D)	Hexachlorobenzene
	Dichloropropane	
	Dichlorophenylarsine	

<sup>1</sup> The abbreviation N.O.S. signifies those members of the general class "not otherwise specified" by name in this listing.





TABLE 1C-2  
HAZARDOUS CONSTITUENTS  
Appendix VIII, 40 CFR 261  
(continued)

Hexachlorobutadiene	N-Nitrosodiethylamine	Tetrachloromethane
Hexachlorocyclohexane (all isomers)	N-Nitrosodimethylamine	2,3,4,6-Tetrachlorophenol
Hexachlorocyclopentadiene	N-Nitrosodiphenylamine	Tetraethylthiopyrophosphate
Hexachloroethane	N-Nitrosodi-N-propylamine	Tetraethyl lead
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,endo-dimethanonaphthalene	N-Nitroso-N-ethylurea	Tetraethylpyrophosphate
Hexachlorophene	N-Nitrosomethylethylamine	Thallium and compounds, N.O.S.
Hexachloropropene	N-Nitroso-N-methylurea	Thallic oxide
Hexaethyl tetraphosphate	N-Nitroso-N-methylurethane	Thallium (I) acetate
Hydrazine	N-Nitrosomethylvinylamine	Thallium (I) carbonate
Hydrocyanic acid	N-Nitrosomorpholine	Thallium (I) chloride
Hydrogen sulfide	N-Nitrosornicotine	Thallium (I) nitrate
Indeno(1,2,3-c,d)pyrene	N-Nitrosopiperidine	Thallium selenite
Iodomethane	N-Nitrosopyrrolidine	Thallium (I) sulfate
Isocyanic acid, methyl ester	N-Nitrososarcosine	Thioacetamide
Isosafrole	5-Nitro-o-toluidine	Thiosemicarbazide
Kepone	Octamethylpyrophosphoramide	Thiourea
Lesiocarpine	Oleyl alcohol condensed with 2 moles ethylene oxide	Thiuram
Lead and compounds, N.O.S.	Osmium tetroxide	Toluene
Lead acetate	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	Toluene diamine
Lead phosphate	Parathion	o-Toluidine hydrochloride
Lead subacetate	Pentachlorobenzene	Tolylene diisocyanate
Maleic anhydride	Pentachloroethane	Toxaphene
Malononitrile	Pentachloronitrobenzene (PCNB)	Tribromomethane
Melphalan	Pentachlorophenol	1,2,4-Trichlorobenzene
Mercury and compounds, N.O.S.	Phenacetin	1,1,1-Trichloroethane
Methapyrilene	Phenol	1,1,2-Trichloroethane
Methomyl	Phenyl dichloroarsine	Trichloroethene (Trichloroethylene)
2-Methylaziridine	Phenylmercury acetate	Trichloromethanethiol
3-Methylcholanthrene	N-Phenylthiourea	2,4,5-Trichlorophenol
4,4'-Methylene-bis-(2-chloroaniline)	Phosgene	2,4,6-Trichlorophenol
Methyl ethyl ketone (MEK)	Phosphine	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Methyl hydrazine	Phosphorothioic acid, O,O-dimethyl ester, O-ester with N,N-dimethyl benzene sulfonamide	2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) (Silvex)
2-Methylacetonitrile	Phthalic acid esters, N.O.S.	Trichloropropane, N.O.S.
Methyl methacrylate	Phthalic anhydride	1,2,3-Trichloropropane
Methyl methanesulfonate	Polychlorinated biphenyl, N.O.S.	0,0,0-Triethyl phosphorothioate
2-Methyl-2-(methylthio)propionaldehyde-(methylcarbonyl) oxime	Potassium cyanide	Trinitrobenzene
N-Methyl-N'-nitro-N-nitrosoguanidine	Potassium silver cyanide	Tris(1-aziridinyl)phosphine sulfide
Methyl parathion	Pronamide	Tris(2,3-dibromopropyl) phosphate
Methylthiouracil	1,2-Propanediol	Trypan blue
Mustard gas	1,3-Propane sultone	Uracil mustard
Naphthalene	Propionitrile	Urethane
1,4-Naphthoquinone	Propylthiouracil	Vanadic acid, ammonium salt
1-Naphthylamine	2-Propyn-1-ol	Vanadium pentoxide (dust)
2-Naphthylamine	Prydine	Vinyl chloride
1-Naphthyl-2-thiourea	Reserpine	Vinylidene chloride
Nickel and compounds, N.O.S.	Saccharin	Zinc cyanide
Nickel carbonyl	Safrole	Zinc phosphide
Nickel cyanide	Selenious acid	
Nicotine and salts	Selenium and compounds, N.O.S.	
Nitric oxide	Selenium sulfide	
p-Nitroaniline	Selenourea	
Nitrobenzene	Silver and compounds, N.O.S.	
Nitrogen dioxide	Silver cyanide	
Nitrogen mustard and hydrochloride salt	Sodium cyanide	
Nitrogen mustard N-oxide and hydrochloride salt	Streptozotocin	
Nitrogen peroxide	Strontium sulfide	
<u>Nitrogen tetroxide</u>	Strychnine and salts	
Nitroglycerine	1,2,4,5-Tetrachlorobenzene	
4-Nitrophenol	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	
4-Nitroquinoline-1-oxide	Tetrachloroethane, N.O.S.	
Nitrosamine, N.O.S.	1,1,1,2-Tetrachloroethane	
N-Nitrosodi-N-butylamine	1,1,2,2-Tetrachloroethane	
N-Nitrosodiethanolamine	Tetrachloroethene (Tetrachloroethylene)	



#### D. Laboratory Discharge

Laboratory discharge come under special considerations since the EPA feels this waste quantity is small in comparison to the waste stream into which it enters. The Agency has set forth two criteria by which laboratory waste may be disposed of in the wastewater stream generated on-site.

1. The laboratory waste volume must be less than 1 percent of the total wastewater volume on an annual average volumetric basis.
2. Evidence must be provided to show the estimated combined average concentration of toxic materials does not exceed 1 ppm in the headworks of the wastewater treatment system.

The second criteria was added since it may be possible to have low wastewater volume such that the 1 percent criteria is exceeded even if the amount of hazardous waste is small.

In addition, the EPA lists the infectious waste generated by certain departments in health care facilities and veterinary hospitals, by laboratories handling etiologic agents, and by sewage treatment facilities, as hazardous waste, unless the waste is sterilized or incinerated. Some hospitals may generate some of the hazardous wastes listed in Subpart D or waste that exhibit the characteristics defined in Subpart C. If so, they are subject to the regulations with respect to these hazardous wastes. In most cases, however, the EPA believes that the special requirements regarding small quantity generators will apply.

### III. STATE DEFINITIONS

#### A. Hazardous Waste

In California, pursuant to the Hazardous Waste Control Act of 1972, the State Department of Health Services developed criteria for the identification of hazardous waste. Definitions of hazardous waste pursuant to this Act are found in Chapter 6.5, Division 20 of the State Health and Safety Code.

Hazardous waste is defined in Section 25117, the same as that of the RCRA.

In addition, Section 25115 defines extremely hazardous waste as follows:

"Extremely hazardous waste" means any hazardous waste or mixture of hazardous wastes which, if human exposure should occur, may likely result in death, disabling personal injury or serious illness caused by the hazardous waste or mixture of hazardous waste because of its quantity, concentration or chemical characteristics.



Title 22, Sections 66693 through 66746 of the California Administrative Code (CAC) presents specific criteria for identifying hazardous and extremely hazardous waste.

A list of substances which the Department has determined to be hazardous according to the above definition is found in Section 66680 of the CAC and is presented in Table 1C-3.

#### B. Infectious Waste

The State Department of Health Services recently promulgated regulations classifying infectious waste as hazardous waste. These regulations apply to specified health care facilities (acute care hospitals, psychiatric hospitals, skilled nursing and intermediate care facilities, primary care facilities, and specialty clinics) and to any producer of less than 100 kilograms of infectious waste per month.

"Infectious wastes" are defined by Section 25117.5 of the State Health and Safety Code and includes:

1. Laboratory wastes, including cultures of etiologic agents, which pose a substantial threat to health due to their volume and virulence.
2. Pathologic specimens, including human or animal tissues, blood elements, excreta and secretions which contain etiologic agents, and attendant disposable formites.
3. Surgical specimens, including human or animal parts and tissues removed surgically or at autopsy which contain etiologic agents, and attendant disposable formites.
4. Equipment, instruments, utensils and other disposable materials which are likely to transmit etiologic agents from the rooms of humans, or the enclosures of animals which have been isolated because of suspected or diagnosed communicable disease.
5. Human dialysis waste materials including arterial lines and dialyzate membranes.
6. Carcasses of animals infected with etiologic agents which may present a substantial hazard to public health if improperly managed.
7. Any other material which, in the determination of the facility infection control staff, presents a significant danger of infection because it is contaminated with, or may reasonably be expected to be contaminated with, etiologic agents.

As used in this section, "etiologic agent" means any type of microorganism, helminth, or virus which causes, or significantly contributes to the cause of increased morbidity or mortality of human beings.

#### C. Special Waste

In addition to those comprehensive criteria and guidelines governing hazardous waste, there has arisen a need to precisely identify those hazardous wastes which are on the lower end of the





LIST OF HAZARDOUS WASTES  
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**66680. Lists of Chemical Names and Common Names.**

(a) A waste that meets the definition of hazardous waste presented in Section 25117 of the Health and Safety Code or satisfies any of the criteria of hazardous waste presented in Article 11 of this chapter shall be considered a hazardous waste whether or not the waste is cited in this article. Such a waste shall be handled and disposed of according to the provisions of this chapter.

(b) A waste that meets the definition of extremely hazardous waste presented in Section 25115 of the Health and Safety Code or satisfies any of the criteria of extremely hazardous waste presented in Article 11 of this chapter shall be considered an extremely hazardous waste whether or not the waste is cited in this article. Such a waste shall be handled and disposed of according to the provisions of this chapter.

(c) The potential hazardous property of a material cited in the List of Chemical Names or the List of Common Names is indicated in the list as follows: (T) toxic, (C) corrosive, (F) ignitable and (R) reactive. An asterisk (\*) in Section 66680(d) denotes an extremely hazardous waste. All letters in trademark names are capitalized.

**(d) List of Chemical Names:**

1. Acetaldehyde (T,F)
2. Acetic acid (T,C,F)
3. Acetone, Propanone (F)
4. \*Acetone cyanohydrin (T)
5. Acetonitrile (T,F)
6. \*2-Acetylaminofluorene, 2-AAF (T)
7. Acetyl benzoyl peroxide (T,F,R)
8. \*Acetyl chloride (T,C,R)
9. Acetyl peroxide (T,F,R)
10. Acridine (T)
11. \*Acrolein, Aqualin (T,F)
12. \*Acrylonitrile (T,F)
13. \*Adiponitrile (T)
14. \*Aldrin; 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-endo-exodimethanonaphthalene (T)
15. \*Alkyl aluminum chloride (C,F,R)
16. \*Alkyl aluminum compounds (C,F,R)
17. Allyl alcohol, 2-Propen-1-ol (T,F)
18. Allyl bromide, 3-Bromopropene (T,F)
19. Allyl chloride, 3-Chloropropene (T,F)
20. Allyl chlorocarbonate, Allyl chloroformate (T,F)
21. \*Allyl trichlorosilane (T,C,F,R)
22. Aluminum (powder) (F)
- 23A. Aluminum chloride (T,C)
- 23B. \*Aluminum chloride (anhydrous) (T,C,R)
24. Aluminum fluoride (T,C)
25. Aluminum nitrate (T,F)
26. \*Aluminum phosphide, PHOSTOXIN (T,F,R)
27. \*4-Aminodiphenyl, 4-ADP (T)
28. \*2-Aminopyridine (T)
29. \*Ammonium arsenate (T)
30. \*Ammonium bifluoride (T,C)
31. Ammonium chromate (T,F)
32. Ammonium dichromate, Ammonium bichromate (T,C,F)
33. Ammonium fluoride (T,C)
34. Ammonium hydroxide (T,C)
35. Ammonium molybdate (T)
36. Ammonium nitrate (F,R)
37. Ammonium perchlorate (F,R)
38. Ammonium permanganate (T,F,R)
39. Ammonium persulfate (F,R)
40. Ammonium picrate (T,R)
41. Ammonium sulfide (T,C,F,R)
42. n-Amyl acetate, 1-Acetorypentane (and isomers) (T,F)
43. n-Amylamine, 1-Aminopentane (and isomers) (T,F)
44. n-Amyl chloride, 1-Chloropentane (and isomers) (T,F)
45. n-Amylene, 1-Pentene (and isomers) (T,F)
46. n-Amyl mercaptan, 1-Pentanethiol (and isomers) (T,F)
47. n-Amyl nitrite, n-Pentyl nitrite (and isomers) (T,F)
48. \*Amyl trichlorosilane (and isomers) (T,C,R)
49. Aniline, Aminobenzene (T)
50. Anisoyl chloride (T,C)
51. Anthracene (T)
52. Antimony (T)
53. Antimony compounds (T)
54. \*Antimony pentachloride (T,C,R)
55. \*Antimony pentafluoride (T,C,R)
56. Antimony pentasulfide (T,F)
57. Antimony potassium tartrate (T)
58. Antimony sulfate, Antimony trisulfate (T,F)
59. Antimony trichloride, Antimony chloride (T,C)
60. Antimony trifluoride, Antimony fluoride (T,C)
61. Antimony trioxide, Antimony oxide (T)
62. Antimony trisulfide, Antimony sulfide (T,F,R)
63. \*Arsenic (T)
64. \*Arsenic acid and salts (T)
65. \*Arsenic compounds (T)
66. \*Arsenic pentaselenide (T)
67. \*Arsenic pentoxide, Arsenic oxide (T)
68. \*Arsenic sulfide, Arsenic disulfide (T)
69. \*Arsenic tribromide, Arsenic bromide (T)





Table 1C-3

LIST OF HAZARDOUS WASTES  
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70. \*Arsenic trichloride, Arsenic chloride (T)
71. \*Arsenic triiodide, Arsenic iodide (T)
72. \*Arsenic trioxide, Arsenious oxide (T)
73. \*Arsenious acid and salts (T)
74. \*Arsines (T)
75. Asbestos (including chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite) (T)
76. \*AZODRIN, 3-Hydroxy-N-cis-crotonamide (T)
77. Barium (T,F)
78. Barium azide (T,R)
79. Barium bromide (T)
80. Barium carbonate (T)
81. Barium chlorate (T,C,F,R)
82. Barium chloride (T)
83. Barium chromate (T)
84. Barium citrate (T)
85. Barium compounds (soluble) (T)
86. \*Barium cyanide (T)
87. Barium fluoride (T)
88. Barium fluosilicate (T)
89. Barium hydroxide (T)
90. Barium iodide (T)
91. Barium manganate (T)
92. Barium nitrate (T,F)
93. Barium oxide, Barium monoxide (T)
94. Barium perchlorate (T,F,R)
95. Barium permanganate (T,F,R)
96. Barium peroxide (T,F,R)
97. Barium phosphate (T)
98. Barium stearate (T)
99. Barium sulfide (T)
100. Barium sulfite (T)
101. Benzene (T,F)
102. \*Benzene hexachloride, BHC; 1,2,3,4,5,6-Hexachlorocyclohexane (T)
103. \*Benzenephosphorous dichloride (T,R)
104. Benzenesulfonic acid (T)
105. \*Benzidine and salts (T)
106. \*Benzotrifluoride, Trifluoromethylbenzene (T,F)
107. \*Benzoyl chloride (T,C,R)
108. Benzoyl peroxide, Dibenzoyl peroxide (T,F,R)
109. Benzyl bromide, alpha-Bromotoluene (T,C)
110. Benzyl chloride, alpha-Chlorotoluene (T)
111. \*Benzyl chlorocarbonate, Benzyl chloroformate (T,C,R)
112. \*Beryllium (T,F)
113. \*Beryllium chloride (T)
114. \*Beryllium compounds (T)
115. \*Beryllium copper (T)
116. \*Beryllium fluoride (T)
117. \*Beryllium hydride (T,C,F,R)
118. \*Beryllium hydroxide (T)
119. \*Beryllium oxide (T)
120. \*BIDRIN, Dicrotophos, 3-(Dimethylamino)-1-methyl-3-oxo-1-propenyl dimethyl phosphate (T)
121. \*bis (Chloromethyl) ether, Dichloromethylether, BCME(T)
122. Bismuth (T,F)
123. \*bis (Methylmercuric) sulfate, CEREWET, Ceresan liquid (T)
124. Bismuth chromate (T)
125. \*BOMYL, Dimethyl 3-hydroxyglutaconate dimethyl phosphate (T)
126. \*Boranes (T,F,R)
127. \*Bordeaux arsenites (T)
128. \*Boron trichloride, Trichloroborane (T,C,R)
129. \*Boron trifluoride (T,C,R)
130. Bromic acid (T)
131. \*Bromine (T,C,F)
132. \*Bromine pentafluoride (T,C,F,R)
133. \*Bromine trifluoride (T,C,F,R)
134. \*Brucine, Dimethoxystrychnine (T)
135. 1,2,4-Butanetriol trinitrate (R)
136. n-Butyl acetate, 1-Acetoxylbutane (and isomers) (T)
137. n-Butyl alcohol, 1-Butanol (and isomers) (T)
138. n-Butyl amine, 1-Aminobutane (and isomers) (T)
139. n-Butyl formate (and isomers) (T)
140. tert-Butyl hydroperoxide (and isomers) (T,F)
141. \*n-Butyllithium (and isomers) (T,C,F,R)
142. n-Butyl mercaptan, 1-Butanethiol (and isomers) (T,F)
143. tert-Butyl peroxyacetate, tert-Butyl peracetate (F,R)
144. tert-Butyl peroxybenzoate, tert-Butyl perbenzoate (F,R)
145. tert-Butyl peroxyvalate (F,R)
146. \*n-Butyltrichlorosilane (C,F,R)
147. para-tert-Butyl toluene (T)
148. n-Butyraldehyde, n-Butanal (and isomers) (T,F)
149. \*Cacodylic acid, Dimethylarsinic acid (T)
150. \*Cadmium (powder) (T,F)
151. Cadmium chloride (T)
152. \*Cadmium compounds (T)
153. \*Cadmium cyanide (T)
154. Cadmium fluoride (T)
155. Cadmium nitrate (T,F,R)



Table 1C-3

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156. Cadmium oxide (T)
157. Cadmium phosphate (T)
158. Cadmium sulfate (T)
159. •Calcium (F,R)
160. •Calcium arsenate, PENSAL (T)
161. •Calcium arsenite (T)
162. •Calcium carbide (C,F,R)
163. Calcium chlorate (F,R)
164. Calcium chlorite (F)
165. Calcium fluoride (T)
166. •Calcium hydride (C,F,R)
167. Calcium hydroxide, Hydrated lime (C)
168. •Calcium hypochlorite, Calcium oxychloride (dry) (T,C,F,R)
169. Calcium molybdate (T)
170. Calcium nitrate, Lime nitrate, Nitrocalcite (F,R)
171. Calcium oxide, Lime (C)
172. Calcium permanganate (T,F)
173. Calcium peroxide, Calcium dioxide (C,F)
174. •Calcium phosphide (T,F,R)
175. Calcium resinate (F)
176. Caprylyl peroxide, Octyl peroxide (F)
177. •Carbanolate, BANOL, 2-Chloro-4,5-dimethylphenyl methylcarbamate (T)
178. Carbon disulfide, Carbon bisulfide (T,F)
179. Carbon tetrachloride, Tetrachloromethane (T)
180. •Carbophenothion, TRITHION, S[(4-Chlorophenyl) thio]methyl] O, O-diethyl phosphorodithioate (T)
181. Chloral hydrate, Trichloroacetaldehyde (hydrated) (T)
182. •Chlordan; 1,2,4,5,6,7,8,8-Octachloro-4,7-methano-3a,4,7,7a-tetrahydroindane (T)
183. •Chlorfenvinphos, Compound 4072, 2-Chloro-1-(2,4-dichlorophenyl) vinyl diethyl phosphate (T)
184. •Chlorine (T,C,F,R)
185. •Chlorine dioxide (T,C,F,R)
186. •Chlorine pentafluoride (T,C,F,R)
187. •Chlorine trifluoride (T,C,F,R)
188. •Chloroacetaldehyde (T,C)
189. •alpha-Chloroacetophenone, Phenyl chloromethyl ketone (T)
190. •Chloroacetyl chloride (T,C,R)
191. Chlorobenzene (T,F)
192. para-Chlorobenzoyl peroxide (F,R)
193. •ortho-Chlorobenzylidene malonitrile, OCMB (T)
194. Chloroform, Trichloromethane (T)
195. •Chloropicrin, Chlorpicrin, Trichloronitromethane (T)
196. •Chlorosulfonic acid (T,C,F,R)
197. Chloro-ortho-toluidine, 2-Amino-4-chlorotoluene (T)
198. Chromic acid, Chromium trioxide, Chromic anhydride (T,C,F)
199. Chromic chloride, Chromium trichloride (T)
200. Chromic fluoride, Chromium trifluoride (T)
201. Chromic hydroxide, Chromium hydroxide (T)
202. Chromic oxide, Chromium oxide (T)
203. Chromic sulfate, Chromium sulfate (T)
204. Chromium compounds (T,C,F)
205. •Chromyl chloride, Chlorochromic anhydride (T,C,F,R)
206. Cobalt (powder) (T,F)
207. Cobalt compounds (T)
208. Cobaltous bromide, Cobalt bromide (T)
209. Cobaltous chloride, Cobalt chloride (T)
210. Cobaltous nitrate, Cobalt nitrate (T,F)
211. Cobaltous resinate, Cobalt resinate (T,F)
212. Cobaltous sulfate, Cobalt sulfate (T)
213. Cocculus, Fishberry, Picrotoxin (T)
215. •Copper acetoarsenite, Paris green (T)
216. Copper acetylide (T,R)
217. •Copper arsenate, Cupric arsenate (T)
218. •Copper arsenite, Cupric arsenite (T)
219. Copper chloride, Cupric chloride (T)
220. Copper chlorotetrazole (T,R)
221. Copper compounds (T)
222. •Copper cyanide, Cupric cyanide (T)
223. Copper nitrate, Cupric nitrate (T,F,R)
224. Copper sulfate, Cupric sulfate, Blue vitriol (T)
225. •Coroxon; ortho,ortho-Diethyl-ortho-(3-chloro-4-methylcoumarin-7-yl) phosphate (T)
226. •Coumafuryl, FUMARIN, 3-[1-(2-Furanyl)-3-oxobutyl]-4-hydroxy-2H-1-benzopyran-2-one (T)
227. •Coumatetralyl, BAYER 25634, RACUMIN 57, 4-Hydroxy-3-(1,2,3,4-tetrahydro-1-naphthalenyl)-2H-1-benzopyran-2-one (T)
228. •Crimidine, CASTRIX, 2-Chloro-4-dimethylamino-6-methylpyrimidine (T)
229. •Crotonaldehyde, 2-Butenal (T)
230. Cumene, Isopropyl benzene (T,F)
231. Cumene hydroperoxide; alpha,alpha-Dimethylbenzyl hydroperoxide (T,F)
232. Cupriethylene diamine (T)
233. •Cyanide salts (T)
234. Cyanoacetic acid, Malonic nitrile (T)
235. •Cyanogen (T,F,R)





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236. Cyanogen bromide, Bromine cyanide (T)  
 237. Cyanuric triazide (T,R)  
 238. Cycloheptane (T,F)  
 239. Cyclohexane (T,F)  
 240. Cyclohexanone peroxide (F)  
 241. •Cyclohexenyltrichlorosilane (T,C,R)  
 242. •Cycloheximide, ACTIDIONE (T)  
 243. •Cyclohexyltrichlorosilane (T,C,R)  
 244. Cyclopentane (T,F)  
 245. Cyclopentanol (F)  
 246. Cyclopentene (T,F)  
 247. DDT; 1,1,1-Trichloro-2,2-bis(chlorophenyl) ethane (T)  
 248. •DDVP, Dichlorvos, VAPONA, Dimethyl dichlorovinyl phosphate (T)  
 249. •Decaborane (T,F,R)  
 250. DECALIN, Decahydronaphthalene (T)  
 251. •Demeton, SYSTOX (T)  
 252. •Demeton-S-methyl sulfone, METALOSYSTOX-SULFON, S-[2-(ethylsulfonyl) ethyl] O,O-dimethyl phosphorothioate (T)  
 253. Diazodinitrophenol, DDNP, 2-Diazo-4,6-dinitrobenzene-1-oxide (T,R)  
 254. •Diborane, Diboron hexahydride (T,R)  
 255. •1,2-Dibromo-3-chloropropane, DBCP, FUMAZONE, NEMAGON (T)  
 256. n-Dibutyl ether, Butyl ether (and isomers) (T,F)  
 257. Dichlorobenzene (ortho, meta, para) (T)  
 258. •3,3-Dichlorobenzidine and salts, DCB (T)  
 259. 1,2-Dichloroethylene; 1,2-Dichloroethene (T,F)  
 260. Dichloroethyl ether, Dichloroether (T,F)  
 261. Dichloroisocyanuric acid, Dichloro-S-triazine-2,4,6-trione (T,F)  
 262. Dichloromethane, Methylene chloride (T)  
 263. •2,4-Dichlorophenoxyacetic acid; 2,4-D (T)  
 264. 1,2-Dichloropropane, Propylene dichloride (T,F)  
 265. 1,3-Dichloropropylene; 1,3-Dichloropropene (T,F)  
 266. Dicumyl peroxide (F,T)  
 267. •Dieldrin; 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo, exo-5,8-dimethanonaphthalene (T)  
 268. •Diethylaluminum chloride, Aluminum diethyl monochloride, DEAC (F,R)  
 269. Diethylamine (T,F)  
 270. •Diethyl chlorovinyl phosphate, Compound 1836 (T)  
 271. •Diethyldichlorosilane (T,C,F,R)  
 272. Diethylene glycol dinitrate (T,R)  
 273. Diethylene triamine (T)  
 274. •O,O-Diethyl-S-(isopropylthiomethyl) phosphorodithioate (T)  
 275. •Diethylzinc, Zinc ethyl (C,F,R)  
 276. •Disulfuric acid (T,C,R)  
 277. •Diglycidyl ether, bis(2,3-Epoxypropyl) ether (T)  
 278. Diisopropylbenzene hydroperoxide (T,F)  
 279. Diisopropyl peroxydicarbonate, Isopropyl percarbonate (T,C,F,R)  
 280. •Dimetox, HANANE, PEXTOX 14, Tetramethylphosphorodiamidic fluoride (T)  
 281. Dimethylamine, DMA (T,F)  
 282. •Dimethylaminoazobenzene, Methyl yellow (T)  
 283. •Dimethyldichlorosilane, Dichlorodimethylsilane (T,C,F,R)  
 284. 2,5-Dimethylhexane-2,5-Dihydroperoxide (F)  
 285. •1,1-Dimethylhydrazine, UDMH (T,F)  
 286. •Dimethyl sulfate, Methyl sulfate (T)  
 287. •Dimethyl sulfide, Methyl sulfide (T,F,R)  
 288. 2,4-Dinitroaniline (T)  
 289. •Dinitrobenzene (ortho, meta, para) (T,R)  
 290. Dinitrochlorobenzene, 1-Chloro-2,4-dinitrobenzene (T,R)  
 291. •4,6-Dinitro-ortho-cresol, DNPC, SINOX, EGETOL 30 (T)  
 292. •Dinitrophenol (2,3-,2,4-,2,6-isomers) (T,R)  
 293. 2,4-Dinitrophenylhydrazine (T,F,R)  
 294. Dinitrotoluene (2,4-,3,4-,3,5-isomers) (T,F,R)  
 295. •DINOSEB; 2,4-Dinitro-6-sec-butylphenol (T)  
 296. 1,4-Dioxane; 1,4-Diethylene dioxide (T,F,R)  
 297. •Dioxathion, DELNAV, S,S-1,4-dioxane-2,3-diyl bis(O,O-diethyl phosphorodithioate) (T)  
 298. Dipentaerythritol hexanitrate (R)  
 299. •Diphenyl, Biphenyl, Phenylbenzene (T)  
 300. Diphenylamine, DPA, N-Phenylaniline (T)  
 301. •Diphenylamine chloroarsine, Phenarsazine chloride (T)  
 302. •Diphenyldichlorosilane (T,C,R)  
 303. Dipicrylamine, Hexanitrodiphenyl amine (T,R)  
 304. Dipropyl ether (T,F)  
 305. •Disulfoton, DI-SYSTON; O,O-Diethyl S-[2-(ethylthio) ethyl] phosphorodithioate (T)  
 306. •Dodecyltrichlorosilane (T,C,R)  
 307. •DOWCO-139, ZECTRAN, Mexacarbate, 4-(Dimethylamino)-3,5-dimethylphenyl methylcarbamate (T)  
 309. •DYFONATE, Fonofos, O-Ethyl-S-phenylethyl phosphonodithioate (T)  
 310. •Endosulfan, THIODAN; 6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-6,9-methano-2,4,3-benzodioxathiepin-3-oxide (T)  
 311. •Endothal, 7-Oxabicyclo [2.2.1]heptane-2,3-dicarboxylic acid (T)  
 312. •Endothion, EXOTHION, S-[ (5-Methoxy-4-oxo-4H-pyran-2-yl)-methyl] O,O-dimethyl phosphorothioate (T)  
 313. •Endrin; 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo-endo-5,8-dimethanonaphthalene (T)  
 314. Epichlorohydrin, Chloropropylene oxide (T,F)



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315. •EPN; O-Ethyl O-para-nitrophenyl phenylphosphonothioate (T)  
 316. •Ethion, NIALATE; O,O,O',O'-Tetraethyl-S,S-methylenediphosphorodithioate (T)  
 317. Ethyl acetate (T,F)  
 318. Ethyl alcohol, Ethanol (T,F)  
 319. Ethylamine, Aminoethane (T,F)  
 320. Ethylbenzene, Phenylethane (T,F)  
 321. Ethyl butyrate, Ethyl butanoate (F)  
 322. Ethyl chloride, Chloroethane (T,F)  
 323. •Ethyl chloroformate, Ethyl chlorocarbonate (T,C,F,R)  
 324. •Ethylchloroarsine, Dichloroethylarsine (T,R)  
 325. •Ethylchlorosilane (T,C,F,R)  
 326. •Ethylene cyanohydrin, beta-Hydroxypropionitrile (T,R)  
 327. Ethylene diamine (T)  
 328. Ethylene dibromide; 1,2-Dibromoethane (T)  
 329. Ethylene dichloride; 1,2-Dichloroethane (T,F)  
 330. •Ethyleneimine, Aziridine, EI (T,F,R)  
 331. Ethylene oxide, Epoxethane (T,F,R)  
 332. Ethyl ether, Diethyl ether (F,R)  
 333. Ethyl formate (T,F)  
 334. •Ethyl mercaptan, Ethanethiol (T,F,R)  
 335. Ethyl nitrate (F,R)  
 336. Ethyl nitrite (F,R)  
 337. •Ethylphenyldichlorosilane (T,C,R)  
 338. Ethyl propionate (F)  
 339. •Ethyltrichlorosilane (T,R)  
 340. •Fensulfothion, BAYER 25141, DASANTT, O,O-Diethyl-O-[4-(methylsulfinyl)phenyl] phosphorothioate (T)  
 341. •Ferric arsenate (T)  
 342. Ferric chloride, Iron (III) chloride (T,C)  
 343. •Ferrous arsenate, Iron arsenate (T)  
 344. •Fluoboric acid, Fluoroboric acid (T,C)  
 345. Fluoride salts (T)  
 346. •Fluorine (T,C,R)  
 347. •Fluoroacetanilide, AFL 1082 (T)  
 348. •Fluoroacetic acid and salts, Compound 1080 (T)  
 349. •Fluorosulfonic acid, Fluosulfonic acid (T,C,R)  
 350. Formaldehyde, Methanal (T,F)  
 351. Formic acid, Methanoic acid (T,C)  
 352. Fulminate of mercury, Mercuric cyanate (T,R)  
 353. •FURADAN, NIA 10,242, Carbofuran; 2,3-Dihydro-2,2-dimethyl-7-benzofuranylmethylcarbamate (T)  
 354. Furan, Furfuran (T,F,R)  
 355. Gasoline (F)  
 356. •GB, O-Isopropyl methyl phosphoryl fluoride (T)  
 357. Glutaraldehyde (T)  
 358. Glycerolmonolactate trinitrate (R)  
 359. Glycol dinitrate, Ethylene glycol dinitrate (R)  
 360. Gold fulminate, Gold cyanate (R)  
 361. Guanidine nitrate (F,R)  
 362. Guanyl nitrosaminoguanilydene hydrazine (R)  
 363. •Guthion; O,O-Dimethyl-S-4-oro-1,2,3-benzotriazin-3(4H)-ylmethyl phosphorodithioate (T)  
 364. Hafnium (F,T,R)  
 365. •Heptachlor; 1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene (T)  
 366. n-Heptane (and isomers) (T,F)  
 367. 1-Heptene (and isomers) (T,F)  
 368. •Hexadecyltrichlorosilane (T,C,R)  
 369. Hexaethyl tetraphosphate, HETP (T)  
 370. Hexafluorophosphoric acid (T,C)  
 371. Hexamethylenediamine; 1,6-Diaminohexane (T)  
 372. n-Hexane (and isomers) (T,F)  
 373. 1-Hexene (and isomers) (T,F)  
 374. n-Hexylamine, 1-Aminohexane (and isomers) (T,F)  
 375. •Hexyltrichlorosilane (T,C,R)  
 376. •Hydrazine, Diamine (T,F)  
 377. Hydrazine azide (T,R)  
 378. Hydrazoic acid, Hydrogen azide (T,R)  
 379. •Hydriodic acid, Hydrogen iodide (T,C,R)  
 380. •Hydrobromic acid, Hydrogen bromide (T,C,R)  
 381. •Hydrochloric acid, Hydrogen chloride, Muriatic Acid (T,C,R)  
 382. •Hydrocyanic acid, Hydrogen cyanide (T,F,R)  
 383. •Hydrofluoric acid, Hydrogen fluoride (T,C,R)  
 384. Hydrofluosilicic acid, Fluosilicic acid (T,C)  
 385. Hydrogen peroxide (T,C,F,R)  
 386. •Hydrogen selenide (T,F)  
 387. •Hydrogen sulfide (T,F)  
 388. •Hypochlorite compounds (T,C,F,R)  
 389. Indium (T)  
 390. Indium compounds (T)  
 391. Iodine monochloride (T,C,R)  
 392. Isooctane; 2,2,4-Trimethylpentane (T,F)  
 393. Isooctene (mixture of isomers) (F)  
 394. Isopentane, 2-Methylbutane (F)  
 395. Isoprene, 2-Methyl-1,3-butadiene (T,F,R)  
 396. Isopropanol, Isopropyl alcohol, 2-Propanol (T,F)  
 397. Isopropyl acetate (T,F)





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399. Isopropylamine, 2-Aminopropane (T,F)  
 400. Isopropyl chloride, 2-Chloropropane (F)  
 401. Isopropyl ether, Diisopropyl ether (F,R)  
 402. Isopropyl mercaptan, 2-Propanethiol (T,F)  
 404. \*meta-Isopropylphenyl-N-methylcarbamate, Ac 5,727 (T)  
 405A. \*Kepone; 1,1a,3,3a,4,5,5,5a,5b,6-Decachlorooctahydro-1,2,4-metheno-2H-cyclobuta (cd) pentalen-2-one, Chlorecone (T)  
 405B. Lauroyl peroxide, Di-n-dodecyl peroxide (T,C,F,R)  
 406. Lead compounds (T)  
 407. Lead acetate (T)  
 408. \*Lead arsenate, Lead orthoarsenate (T)  
 409. \*Lead arsenite (T)  
 410. Lead azide (T,R)  
 411. Lead carbonate (T)  
 412. Lead chlorite (T,R)  
 413. \*Lead cyanide (T)  
 414. Lead 2,4-dinitroresorcinate (T,R)  
 415. Lead mononitroresorcinate (T,R)  
 416. Lead nitrate (T,F)  
 417. Lead oxide (T)  
 418. Lead styphnate, Lead trinitroresorcinate (T,R)  
 419. \*Lewisite, beta-Chlorovinylchloroarsine (T)  
 420. \*Lithium (C,F,R)  
 421. \*Lithium aluminum hydride, LAH (C,F,R)  
 422. \*Lithium amide (C,F,R)  
 423. \*Lithium ferrosilicon (F,R)  
 424. \*Lithium hydride (C,F,R)  
 425. \*Lithium hypochlorite (T,C,F,R)  
 426. Lithium peroxide (C,F,R)  
 427. Lithium silicon (F,R)  
 428. \*London purple, Mixture of arsenic trioxide, anilinc, lime, and ferrous oxide (T)  
 429. \*Magnesium (F,R)  
 430. \*Magnesium arsenate (T)  
 431. \*Magnesium arsenite (T)  
 432. Magnesium chlorate (F,R)  
 433. Magnesium nitrate (F,R)  
 434. Magnesium perchlorate (T,F,R)  
 435. Magnesium peroxide, Magnesium dioxide (F)  
 436. \*Maleic anhydride (T)  
 437. Manganese (powder) (F)  
 438. Manganese acetate (T)  
 439. \*Manganese arsenate, Manganous arsenate (T)  
 440. Manganese bromide, Manganous bromide (T)  
 441. Manganese chloride, Manganous chloride (T)  
 442. Manganese methylcyclopentadienyl tricarbonyl (T)  
 443. Manganese nitrate, Manganous nitrate (T,F)  
 444. Mannitol hexanitrate, Nitromannite (R)  
 445. \*MECARBAM;O,O-Diethyl S-(N-ethoxycarbonyl N-methylcarbamoyl-methyl) phosphorodithioate (T)  
 446. \*Medinoterb acetate, 2-tert-Butyl-5-methyl-4,6-dinitrophenyl acetate (T)  
 447. para-Menthane hydroperoxide, Paramenthane hydroperoxide (F)  
 448. Mercuric acetate, Mercury acetate (T)  
 449. Mercuric ammonium chloride, Mercury ammonium chloride (T)  
 450. Mercuric benzoate, Mercury benzoate (T)  
 451. Mercuric bromide, Mercury bromide (T)  
 452. \*Mercuric chloride, Mercury chloride (T)  
 453. \*Mercuric cyanide, Mercury cyanide (T)  
 454. Mercuric iodide, Mercury iodide (T)  
 455. Mercuric nitrate, Mercury nitrate (T,F)  
 456. Mercuric oleate, Mercury oleate (T)  
 457. Mercuric oxide (red and yellow) (T,F)  
 458. Mercuric oxycyanide (T,R)  
 459. Mercuric-potassium iodide, Mayer's reagent (T)  
 460. Mercuric salicylate, Salicylated mercury (T)  
 461. Mercuric subsulfate, Mercuric dioxysulfate (T)  
 462. Mercuric sulfate, Mercury sulfate (T)  
 463. Mercuric thiocyanide, Mercury thiocyanate (T)  
 464. Mercuriol, Mercury nucleate (T)  
 465. Mercurous bromide (T)  
 466. Mercurous gluconate (T)  
 467. Mercurous iodide (T)  
 468. Mercurous nitrate (T,R)  
 469. Mercurous oxide (T)  
 470. Mercurous sulfate, Mercury bisulfate (T)  
 472. \*Mercury (T)  
 473. \*Mercury compounds (T)  
 474. Metal carbonyls (T)  
 475. \*Metal hydrides (F,R)  
 476. Metal powders (T,F)  
 477A. \*Methomyl, LANNATE, S-Methyl-N-((methyl-carbamoyl)oxy) thioacetimidate (T)  
 477B. \*Methoxychlor; 1,1,1-Trichloro-2, 2-bis(p-methoxyphenyl)ethane, CHEMFLOM, MARLATE (T)  
 478. \*Methoxyethylmercuric chloride, ACALLOL, ARETAN (T)  
 479. Methyl acetate (T,F)  
 480. Methyl acetone (Mixture of acetone, methyl acetate, and methyl alcohol) (T,F)



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481. Methyl alcohol, Methanol (T,F)  
 482. \*Methylaluminum sesquibromide (F,R)  
 483. \*Methylaluminum sesquichloride (F,R)  
 484. Methylamine, Aminomethane (T,F)  
 485. N-Methylaniline (T)  
 486. \*Methyl bromide, Bromomethane (T)  
 487. 2-Methyl-1-butene (F)  
 488. 3-Methyl-1-butene (F)  
 489. Methyl butyl ether (and isomers) (T,F)  
 490. Methyl butyrate (and isomers) (T,F)  
 491. Methyl chloride, Chloromethane (T,F)  
 492. \*Methyl chloroformate, Methyl chlorocarbonate (T,F,R)  
 493. \*Methyl chloromethyl ether, CMME (T,F)  
 494. Methylcyclohexane (T,F)  
 495. \*Methyldichloroarsine (T)  
 496. \*Methyldichlorosilane (T,F,R)  
 497. \*4,4-Methylene bis(2-chloroaniline), MOCA (T)  
 498. Methyl ethyl ether (T,F)  
 499. Methyl ethyl ketone, 2-Butanone (T,F)  
 500. Methyl ethyl ketone peroxide (T,F)  
 501. Methyl formate (T,F)  
 502. \*Methyl hydrazine, Monomethyl hydrazine, MMH (T,F)  
 503. \*Methyl isocyanate (T,F)  
 504. Methyl isopropenyl ketone, 3-Methyl-3-butene-2-one (T,F)  
 505. \*Methylmagnesium bromide (C,F,R)  
 506. \*Methylmagnesium chloride (C,F,R)  
 507. \*Methylmagnesium iodide (C,F,R)  
 508. Methyl mercaptan, Methanethiol (T,F)  
 509. Methyl methacrylate (monomer) (T,F)  
 510. \*Methyl parathion; O,O-Dimethyl-O-para-nitrophenylphosphorothioate (T)  
 511. Methyl propionate (F)  
 512. \*Methyltrichlorosilane (T,C,F,R)  
 513. Methyl valerate, Methyl pentanoate (and isomers) (F)  
 514. Methyl vinyl ketone, 3-Butene-2-one (T,F)  
 515A. \*Mevinphos, PHOSDRIN, 2-Carbomethoxy-1-methylvinyl dimethyl phosphate (T)  
 515B. \*Mirex; 1,1a,2,2,3,3a,4,5,5a,5b,6-Dodecachlorooctahydro-1, 3,  
 516. \*MOCAP, O-Ethyl-S,S-dipropyl phosphorodithioate (T)  
 517. Molybdenum (powder) (F)  
 518. Molybdenum trioxide, Molybdenum anhydride (T)  
 519. Molybdic acid and salts (T)  
 520. Monochloroacetic acid, Chloroacetic acid, MCA (T,C)  
 521. Monochloroacetone, Chloroacetone, 1-Chloro-2-propanone (T)  
 522. Monofluorophosphoric acid (T,C)  
 523. Naphtha (of petroleum or coal tar origin), Petroleum ether, Petroleum naphtha (T,F)  
 524. Naphthalene (T,S)  
 525. \*alpha-Naphthylamine, 1-NA (T)  
 526. \*beta-Naphthylamine, 2-NA (T)  
 527. Neohexane; 2,2-Dimethylbutane (T,F)  
 528. Nickel (powder) (T,F)  
 529. Nickel acetate (T)  
 530. Nickel antimonide (T)  
 531. \*Nickel arsenate, Nickelous arsenate (T)  
 532. \*Nickel carbonyl, Nickel tetracarbonyl (T)  
 533. Nickel chloride, Nickelous chloride (T)  
 534. \*Nickel cyanide (T)  
 535. Nickel nitrate, Nickelous nitrate (T,F,R)  
 536. Nickel selenide (T)  
 537. Nickel sulfate (T)  
 538. Nicotine, beta-pyridyl-alpha-N-methyl pyrrolidine (T)  
 539. Nicotine salts (T)  
 540. Nitric acid (T,C,F)  
 541. Nitroaniline, Nitraniline (ortho, meta, para) (T,R)  
 542. \*Nitrobenzol, Nitrobenzene (T)  
 543. \*4-Nitrobiphenyl, 4-NBP (T)  
 544. Nitro carbo nitrate (F,R)  
 545. Nitrocellulose, Cellulose nitrate, Guncotton, Pyroxylin, Collodion, Pyroxylin (nitrocellulose) in ether and alcohol (F,R)  
 546. Nitrochlorobenzene, Chloronitrobenzene (ortho,meta,para) (T)  
 547. Nitrogen mustard (T,C)  
 548. Nitrogen tetroxide, Nitrogen dioxide (T,F)  
 549. Nitroglycerin, Trinitroglycerin (T,F,R)  
 550. Nitrohydrochloric acid, Aqua regia (T,C,F)  
 551. \*Nitrophenol (ortho, meta, para) (T)  
 552. \*N-Nitrosodimethylamine, Dimethyl nitrosoamine (T)  
 553. Nitrosoguanidine (R)  
 554. Nitrostarch, Starch nitrate (F,R)  
 555. Nitroxyol, Nitroxylen, Dimethylnitrobenzene (2,4-;3,4-;2,5-isomers) (T)  
 556. 1-Nonene, 1-Nonylene (and isomers) (T,F)  
 557. \*Nonyltrichlorosilane (T,R)  
 558. \*Octadecyltrichlorosilane (T,R)  
 559. n-Octane (and isomers) (T,F)  
 560. 1-Octene, 1-Caprylene (T,F)  
 561. \*Octyltrichlorosilane (T,R)  
 563. \*Oleum, Fuming sulfuric acid (T,C,R)





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565. Osmium compounds (T)  
 566. Oxalic acid (T)  
 567. \*Oxygen difluoride (T,C,R)  
 568. \*Para-oxon, MINTACOL; O,O-Diethyl-O-para-nitrophenyl phosphate (T)  
 569. \*Parathion; O,O-Diethyl-O-para-nitrophenyl phosphorothioate (T)  
 570A. \*Pentaborane (T,F,R)  
 570B. Pentachlorophenol, PCP, DOWICIDE 7 (T)  
 571. Pentaerythrit tetranitrate, Pentaerythritol tetranitrate (R)  
 572. n-Pentane (and isomers) (T,F)  
 573. 2-Pentanone, Methyl propyl ketone (and isomers) (T,F)  
 574. Peracetic acid, Peroxyacetic acid (T,C,F,R)  
 575. Perchloric acid (T,C,F,R)  
 576. Perchloroethylene, Tetrachloroethylene (T)  
 577. \*Perchloromethyl mercaptan, Trichloromethylsulfenyl chloride (T)  
 578. Perchloryl fluoride (T,C,F)  
 580. Phenol, Carboic acid (T,C)  
 581. \*Phenyldichloroarsine (T,I)  
 582. Phenylenediamine, Diaminobenzene (ortho,meta,para) (T)  
 583. Phenylhydrazine hydrochloride (T)  
 584. \*Phenylphenol, Orthozenol, DOWICIDE I (T)  
 585. \*Phenyltrichlorosilane (T,R)  
 586. \*Phorate, THIMET; O,O-Diethyl-S-[(Ethylthio) methyl] phosphorodithioate (T)  
 587. \*Phosfolan, CYOLAN, 2-(Diethoxyphosphinylimino)-1,3-dithiolane (T)  
 588. \*Phosgene, Carbonyl chloride (T,R)  
 589. \*Phosphamidon, DIMECRON, 2-Chloro-2-diethylcarbamoyl-1-methyl-vinyl dimethyl phosphate (T)  
 590. \*Phosphine, Hydrogen phosphide (T,F)  
 591. Phosphoric acid (C)  
 592. Phosphoric anhydride, Phosphorus pentoxide (C,F)  
 593. Phosphorus (amorphous, red) (T,F,R)  
 594. \*Phosphorus (white or yellow) (T,F,R)  
 595. \*Phosphorus oxybromide, Phosphoryl bromide (T,C,R)  
 596. \*Phosphorus oxychloride, Phosphoryl chloride (T,C,R)  
 597. \*Phosphorus pentachloride, Phosphoric chloride (T,C,F,R)  
 598. \*Phosphorus pentasulfide, Phosphoric sulfide (T,C,F,R)  
 599. \*Phosphorus sesquisulfide, Tetraphosphorus trisulfide (T,C,F,R)  
 600. \*Phosphorus tribromide (T,C,R)  
 601. \*Phosphorus trichloride (T,C,R)  
 602. Picramide, Trinitroaniline (T,R)  
 603. Picric acid, Trinitrophenol (T,R)  
 604. Picryl chloride, 2-Chloro-1,3,5-trinitrobenzene (T,R)  
 605. \*Platinum compounds (T)  
 606. \*Polychlorinated biphenyls, PCB, Askarel, AROCLOR, CHLOREX-TOL, INERTEEN, PYRANOL (T)  
 607. Polyvinyl nitrate (F,R)  
 608. POTASAN; O,O-Diethyl-O-(4-methylumbelliferone) phosphorothioate (T)  
 609. \*Potassium (C,F,R)  
 610. \*Potassium arsenate (T)  
 611. \*Potassium arsenite (T)  
 612. \*Potassium bifluoride, Potassium acid fluoride (T,C)  
 613. Potassium binoxalate, Potassium acid oxalate (T)  
 614. Potassium bromate (T,F)  
 615. \*Potassium cyanide (T)  
 616. Potassium dichloroisocyanurate (T,F)  
 617. Potassium dichromate, Potassium bichromate (T,C,F)  
 619. Potassium fluoride (T)  
 620. \*Potassium hydride (C,F,R)  
 621. Potassium hydroxide, Caustic potash (T,C)  
 622. Potassium nitrate, Saltpeter (F,R)  
 623. Potassium nitrite (F,R)  
 624. Potassium oxalate (T)  
 625. Potassium perchlorate (T,F,R)  
 626. Potassium permanganate (T,C,F)  
 627. Potassium peroxide (C,F,R)  
 628. Potassium sulfide (T,F)  
 629. \*Propargyl bromide, 3-Bromo-1-propyne (T,F)  
 630. \*beta-Propiolactone, BPL (T)  
 631. Propionaldehyde, Propanal (T,F)  
 632. Propionic acid, Propanoic acid (T,C,F)  
 633. n-Propyl acetate (T,F)  
 634. n-Propyl alcohol, 1-Propanol (T,F)  
 635. n-Propylamine (and isomers) (T,F)  
 636. \*Propyleneimine, 2-Methylaziridine (T,F)  
 637. Propylene oxide (T,F)  
 638. n-Propyl formate (T,F)  
 639. n-Propyl mercaptan, 1-Propanethiol (T,F)  
 640. \*n-Propyltrichlorosilane (T,C,F,R)  
 641. \*Prothoate, FOSTION, FAC; O,O-Diethyl-S-carboethoxyethyl phosphorodithioate (T)  
 642. Pyridine (T,F)  
 643. \*Pyrosulfuryl chloride, Disulfuryl chloride (T,C,R)  
 644. \*Quinone; 1,4-Benzoquinone (T)  
 645. Raney nickel (F)  
 646. \*Schradan, Octamethyl pyrophosphoramidate, OMPA (T)



LIST OF HAZARDOUS WASTES  
TITLE 22, DIVISION 4, CHAPTER 30, CALIFORNIA ADMINISTRATIVE CODE

- 647A. \*Selenium (T)  
 647B. \*Selenium compounds (T)  
 648. \*Selenium fluoride (T)  
 649. \*Selenous acid, Selenious acid and salts (T)  
 650. \*Silicon tetrachloride, Silicon chloride (T,C,R)  
 651. \*Silver acetylide (T,R)  
 652. Silver azide (T,R)  
 653. Silver compounds (T)  
 654. Silver nitrate (T)  
 655. Silver styphnate, Silver trinitroresorcinat (T,R)  
 656. Silver tetrazene (T,R)  
 657. \*Sodium (C,F,R)  
 658. Sodium aluminate (C)  
 659. \*Sodium aluminum hydride (C,F,R)  
 660. \*Sodium amide, Sodamide (C,F,R)  
 661. \*Sodium arsenate (T)  
 662. \*Sodium arsenite (T)  
 663. Sodium azide (T,R)  
 664. \*Sodium bifluoride, Sodium acid fluoride (T,C)  
 665. Sodium bromate (T,F)  
 666. \*Sodium cacodylate, Sodium dimethylarsenate (T)  
 667. Sodium carbonate peroxide (F)  
 668. Sodium chlorate (T,F)  
 669. Sodium chlorite (T,F)  
 670. Sodium chromate (T,C)  
 671. \*Sodium cyanide (T)  
 672. Sodium dichloroisocyanurate (F)  
 673. Sodium dichromate, Sodium bichromate (T,C,F)  
 674. Sodium fluoride (T)  
 675. \*Sodium hydride (T,C,F,R)  
 676. Sodium hydrosulfite, Sodium hyposulfite (F)  
 677. Sodium hydroxide, Caustic soda, Lye (T,C)  
 678. \*Sodium hypochlorite (T,F,R)  
 679. \*Sodium methylate, Sodium methoxide (C,F,R)  
 680. Sodium molybdate (T)  
 681. Sodium nitrate, Soda niter (T,F,R)  
 682. Sodium nitrite (T,F,R)  
 683. Sodium oxide, Sodium monoxide (T,C)  
 684. Sodium perchlorate (T,F,R)  
 685. Sodium permanganate (T,F)  
 686. \*Sodium peroxide (T,F,R)  
 687. Sodium picramate (T,F,R)  
 688. \*Sodium potassium alloy, NaK, NaK (C,F,R)  
 689. \*Sodium selenate (T)  
 690. Sodium sulfide, Sodium hydrosulfide (T,F)  
 691. Sodium thiocyanate, Sodium sulfocyanate (T)  
 692. Stannic chloride, Tin tetrachloride (T,C)  
 693. \*Strontium arsenate (T)  
 694. Strontium nitrate (T,F,R)  
 695. Strontium peroxide, Strontium dioxide (F,R)  
 696. \*Strychnine and salts (T)  
 697. Styrene, Vinylbenzene (T,F)  
 698. Succinic acid peroxide (T,F)  
 699. Sulfide salts (soluble) (T)  
 700. \*Sulfotepp, DITHIONE, BLADAFUM, Tetraethyl dithiopyrophosphate, TEDP (T)  
 701. \*Sulfur chloride, Sulfur monochloride (T,C,R)  
 702. \*Sulfur mustard (T,C,R)  
 703. \*Sulfur pentafluoride (T,C)  
 704. Sulfur trioxide, Sulfuric anhydride (T,C,F)  
 705. Sulfuric acid, Oil of vitriol, Battery acid (T,C)  
 706. Sulfurous acid (T,C)  
 707. \*Sulfuryl chloride, Sulfonyl chloride (T,C,R)  
 708. \*Sulfuryl fluoride, Sulfonyl fluoride (T,C,R)  
 709. \*SUPRACIDE, ULTRACIDE, S-[(5-Methoxy-2-oxo-1,3,4-thiadiazol-3(2H)-yl) methyl] -O,O-dimethyl phosphorodithioate (T)  
 710. \*SURECIDE, Cyanophenphos, O-para-Cyanophenyl-O-ethyl phenyl phosphonothioate (T)  
 711. \*Tellurium hexafluoride (T,C)  
 712. \*TELODRIN, Isobenzan; 1,3,4,5,6,7,8,8-Octachloro-1,3,3a,4,7,7a-hexahydro-4,7-methanoisobenzofuran (T)  
 713. \*TEMIK, Aldicarb, 2-Methyl-2(methylthio) propionaldehyde-O-(methylcarbamoyl) oxime (T)  
 714. \*2,3,7,8-Tetrachlorodibenzo-para-dioxin, TCDD, Dioxin (T)  
 715. sym-Tetrachloroethane (T)  
 717. \*Tetraethyl lead, TEL (and other organic lead) (T,F)  
 718. \*Tetraethyl pyrophosphate, TEPP (T)  
 719A. Tetrahydrofuran, THF (T,F)  
 719B. Tetrahydrophthalic anhydride, Memtetrahydrophthalic anhydride (T)  
 720. TETRALIN, Tetrahydronaphthalene (T)  
 721. Tetramethyl lead, TML (T,F)  
 722. \*Tetramethyl succinonitrile (T)  
 723. \*Tetranitromethane (T,F,R)  
 724. \*Tetrasul, ANIMERT V-101, S-para-Chlorophenyl-2,4,5-trichlorophenyl sulfide (T)  
 725. Tetrazene, 4-Amidino-1-(nitrosamino-amidino)-1-tetrazene (T,R)  
 726. \*Thallium (T)





LIST OF HAZARDOUS WASTES  
TITLE 22, DIVISION 4, CHAPTER 30, CALIFORNIA ADMINISTRATIVE CODE

727. \*Thallium compounds (T)  
 728. \*Thallous sulfate, Thallium sulfate, RATOX (T)  
 729. \*Thiocarbonylchloride, Thiophosgene (T,C,R)  
 730. \*Thionazin, ZINOPHOS; O,O-Tetramethylthiuram monosulfide (T)  
 731. \*Thionyl chloride, Sulfur oxychloride (T,C,R)  
 732. \*Thiophosphoryl chloride (T,C,R)  
 733. Thorium (powder) (F)  
 734. Tin compounds (organic) (T)  
 735. Titanium (powder) (F)  
 736. Titanium sulfate (T)  
 737. \*Titanium tetrachloride, Titanic chloride (T,C,R)  
 738. Toluene, Methylbenzene (T,F)  
 739. \*Toluene-2,4-diisocyanate, TDI (T,R)  
 740A. Toluidine, Aminotoluene (ortho,meta,para) (T)  
 740B. \*Toxaphene, Polychlorocamphene (T)  
 741. \*TRANID, exo-3-Chloro-endo-6-cyano-2-norbornanone-O-(methylcarbamoyl) oxime (T)  
 743. 1,1,2-Trichloroethane (T)  
 744. Trichloroethylene; Trichlorethene (T)  
 745. Trichloroisocyanuric acid (T,I,F)  
 746. \*2,4,5-Trichlorophenoxyacetic acid; 2,4,5-T (T)  
 747. \*Trichlorosilane, Silicochloroform (T,C,F,R)  
 748. Trimethylamine, TMA (T,F)  
 749. Trinitroanisole; 2,4,6-Trinitrophenyl methyl ether (T,R)  
 750. 1,3,5-Trinitrobenzene, TNB (T,R)  
 751. 2,4,6-Trinitrobenzoic acid (T,R)  
 752. Trinitronaphthalene, Naphtite (T,R)  
 753. 2,4,6-Trinitroresorcinol, Styphnic acid (T,R)  
 754. 2,4,6-Trinitrotoluene, TNT (T,F,R)  
 755. \*tris(1-Aziridiny) phosphine oxide, Triethylenephosphoramide, TEPA (T)  
 756. Tungstic acid and salts (T)  
 757. Turpentine (T,F)  
 758. Uranyl nitrate, Uranium nitrate (T,F,R)  
 759. Urea nitrate (T,F,R)  
 760. n-Valeraldehyde, n-Pentanal (and isomers) (T,F)  
 761. Vanadic acid salts (T)  
 762. Vanadium oxytrichloride (T,C)  
 763. \*Vanadium pentoxide, Vanadic acid anhydride (T)  
 764. Vanadium tetrachloride (T,C)  
 765. Vanadium tetraoxide (T)  
 766. Vanadium trioxide, Vanadium sesquioxide (T)  
 767. Vanadyl sulfate, Vanadium sulfate (T)  
 768. Vinyl acetate (F,T)

769. \*Vinyl chloride (T,F)  
 770. Vinyl ethyl ether (F)  
 771. Vinylidene chloride, VC (T,F)  
 772. Vinyl isopropyl ether (F)  
 773. \*Vinyltrichlorosilane (T,C,F,R)  
 774. VX, O-Ethyl methyl phosphoryl N,N-diisopropyl thiocholine (T)  
 775. \*WEPSYN 155, WP 155, Triamiphos, para-(5-Amino-3-phenyl-1H-1,2,4-triazol-1-yl)-N,N,N',N'-tetramethyl phosphonic diamide (T)  
 776. Xylene, Dimethylbenzene (ortho,meta,para) (T,F)  
 777. Zinc (powder) (F)  
 778. Zinc ammonium nitrate (T,F)  
 779. \*Zinc arsenate (T)  
 780. \*Zinc arsenite (T)  
 781. Zinc chloride (T,C)  
 782. Zinc compounds (T)  
 783. \*Zinc cyanide (T)  
 784. Zinc nitrate (T,F,R)  
 785. Zinc permanganate (T,F)  
 786. Zinc peroxide, Zinc dioxide (T,F,R)  
 787. \*Zinc phosphide (T,F,R)  
 788. Zinc sulfate (T)  
 789. Zirconium (powder) (F)  
 790. \*Zirconium chloride, Zirconium tetrachloride (T,C,R)  
 791. Zirconium picramate (F)

(e) List of Common Names. In this subsection a dagger denotes the common name of a waste which comes under the provisions of this chapter if it contains a hazardous material.

Acetylene sludge (C)  
 Acid and water (C)  
 Acid sludge (C)  
 AFU Flocc (T)  
 Alkaline caustic liquids (C)  
 Alkaline cleaner (C)  
 Alkaline corrosive battery fluid (C)  
 Alkaline corrosive liquids (C)  
 Asbestos waste (T)  
 Ashes (T,C)  
 Bag house wastes†  
 Battery acid (C)  
 Beryllium waste (T)  
 Bilge water (T)  
 Boiler cleaning waste (T,C)  
 Bunker Oil (T,F)  
 Catalyst†



Table 1C-3

## LIST OF HAZARDOUS WASTES

TITLE 22, DIVISION 4, CHAPTER 30, CALIFORNIA ADMINISTRATIVE CODE

Caustic sludge (C)  
 Caustic wastewater (C)  
 Chemical cleaners†  
 Chemical toilet waste†  
 Cleaning solvents (F)  
 Corrosion inhibitor (T,C)  
 Data processing fluid (F)  
 Drilling fluids†  
 Drilling mud†  
 Dyes†  
 Etching acid liquid or solvent (C,F)  
 Fly ash (T,C)  
 Fuel waste (T,F)  
 Insecticides (T)  
 Laboratory waste†  
 Lime and sulfur sludge (C)  
 Lime and water (C)  
 Lime sludge (C)  
 Lime wastewater (C)  
 Liquid cement†  
 Liquid cleaning compounds†  
 Mine tailings†  
 Obsolete explosives (R)  
 Oil and water (T)  
 Oil Ash (T,C)  
 Paint (or varnish) remover or stripper (F)  
 Paint thinner (T,F)  
 Paint waste (or slops) (T,F)  
 Pickling liquor (C)  
 Pigments†  
 Plating waste (T,C)  
 Printing Ink†  
 Retrograde explosives (R)  
 Sludge acid (C)  
 Soda ash (C)  
 Solvents (F)  
 Spent acid (C)  
 Spent caustic (C)  
 Spent (or waste) cyanide solutions (T,C)  
 Spent mixed acid (C)  
 Spent plating solution (T,C)  
 Spent sulfuric acid (C)  
 Stripping solution (T,F)  
 Sulfonation oil (F)

Tank bottom sediment†  
 Tank cleaning sludges†  
 Tanning sludges (T)  
 Toxic chemical toilet wastes (T)  
 Unrinsed pesticide containers (T)  
 Unwanted or waste pesticides—an unusable portion of active ingredient or undiluted formulation (T)  
 Waste chemicals†  
 Waste expoxides†  
 Waste (or slop) oil (T)  
 Weed Killer (T)



hazard scale. These "border line" or special hazardous wastes are usually generated in large quantity and usually present only a low level hazard to human health and the environment.

Section 66742 of the CAC provides the following criteria for classifying a waste as a special waste:

1. It is a solid, a water-based sludge or a water-based slurry, of which the solid constituents are substantially insoluble in water
2. It is a hazardous waste only because:
  - a. it contains a persistent or bioaccumulative substance listed in Section 66699(b) at a solubilized and extractable concentration exceeding its Soluble Threshold Limit Concentration (STLC), or at a total concentration exceeding its Total Threshold Limit Concentration (TTLC), except that
    - i. It shall contain no persistent or bioaccumulative substance listed in Section 66699(b) at a solubilized and extractable concentration in milligrams per kilogram of waste exceeding the TTLC value for the substance; and
    - ii. It shall contain no persistent or bioaccumulative inorganic substance listed in Section 66723(b) at a concentration equal to or exceeding the TTLC value of the substance.

Table 1C-4, extracted from Section 66740, is a noninclusive list of wastes which are classifiable as special wastes provided they meet the requirements listed above.

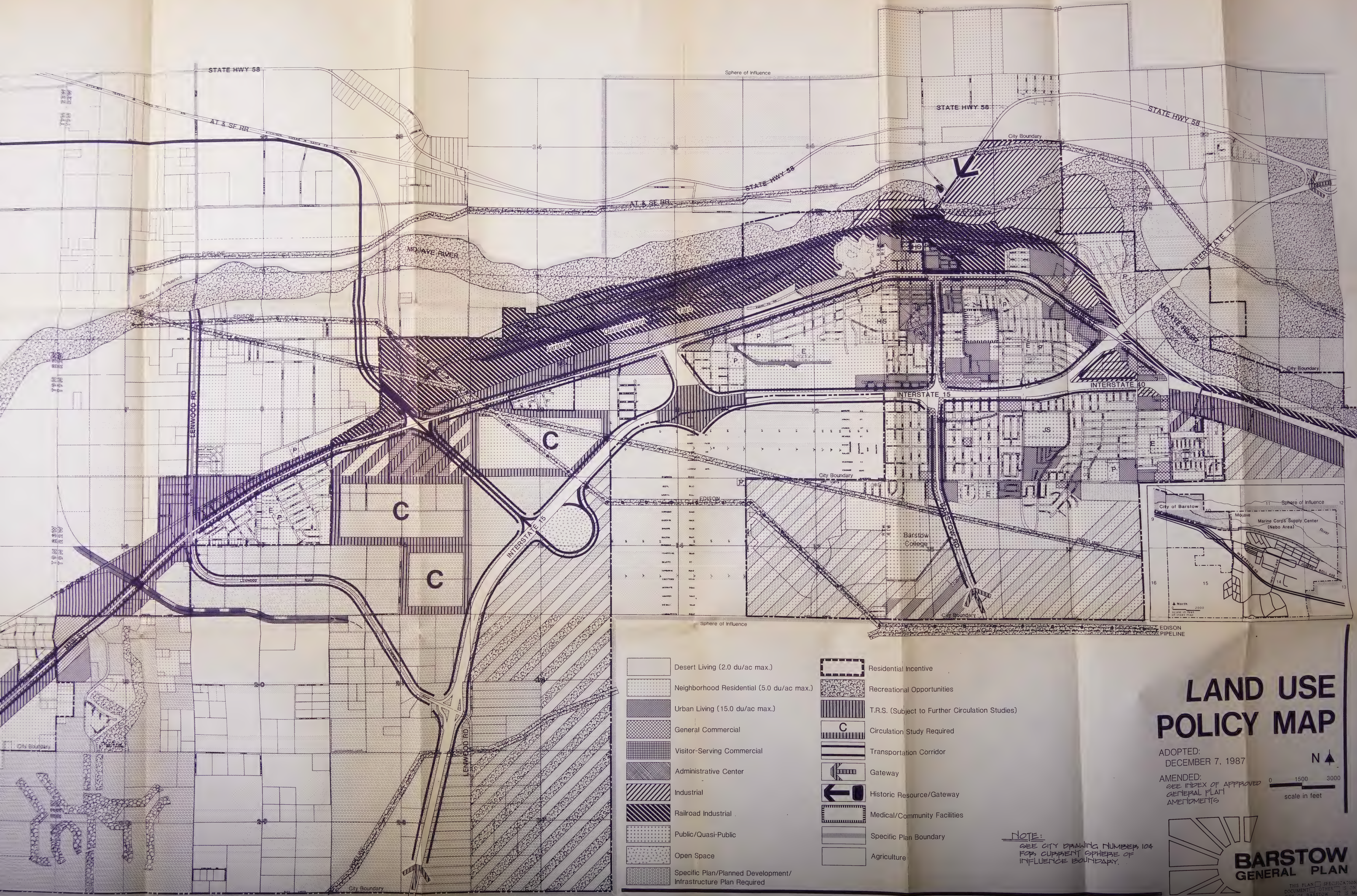


TABLE 1C-4  
LIST OF SPECIAL WASTES

1. Ash from burning of fossil fuels, biomass and other combustible materials
2. Auto shredder waste
3. Baghouse and scrubber wastes from air pollution control
4. Catalyst from petroleum refining and chemical plant processes
5. Cement kiln dust
6. Dewatered sludge from treatment of industrial process water
7. Dewater tannery sludge
8. Drilling mud from drilling of gas and oil wells
9. Refractory from industrial furnaces, kilns, and ovens
10. Sand from sandblasting
11. Sand from foundry casting
12. Slag from coal gasification
13. Sulfur dioxide scrubber waste from flue gas emission control in combustions of fossil fuels
14. Tailings from the extraction, beneficiation, and processing of ores and minerals

Source: Title 22, Division 4, Chapter 30, Section 66740,  
California Administrative Code





- |  |  |  |   |
|--|--|--|---|
|  | Desert Living (2.0 du/ac max.)                                     |  | Residential Incentive                           |
|  | Neighborhood Residential (5.0 du/ac max.)                          |  | Recreational Opportunities                      |
|  | Urban Living (15.0 du/ac max.)                                     |  | T.R.S. (Subject to Further Circulation Studies) |
|  | General Commercial   |  | Circulation Study Required                      |
|  | Visitor-Serving Commercial   |  | Transportation Corridor                         |
|  | Administrative Center  |  | Gateway   |
|  | Industrial   |  | Historic Resource/Gateway                       |
|  | Railroad Industrial  |  | Medical/Community Facilities                    |
|  | Public/Quasi-Public  |  | Specific Plan Boundary                          |
|  | Open Space   |  | Agriculture                                     |
|  | Specific Plan/Planned Development/<br>Infrastructure Plan Required |  |   |

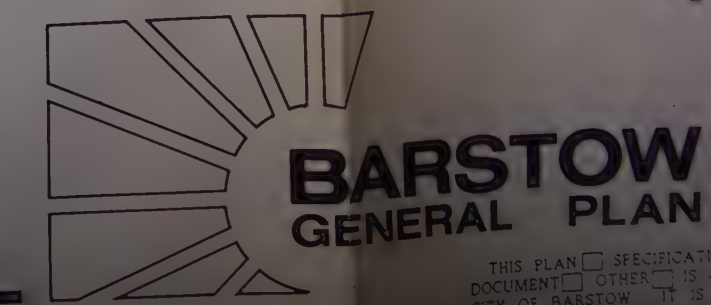
# LAND USE POLICY MAP

ADOPTED:  
DECEMBER 7, 1987

AMENDED:  
SEE INDEX OF APPROVED  
GENERAL PLAN  
AMENDMENTS

0 1500 3000  
scale in feet

NOTE:  
SEE CITY DRAWING NUMBER 104  
FOR CURRENT SPHERE OF  
INFLUENCE BOUNDARY.



THIS PLAN SPECIFICATION DRAWN  
DOCUMENT OTHER IS ON FILE WITH  
CITY OF BARSTOW IT IS MADE AVAILABLE  
PURSUANT TO SECTION 65961.001, P.C.  
P.C. 65961.001



93 00313

map

City of Barstow  
Land use map





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